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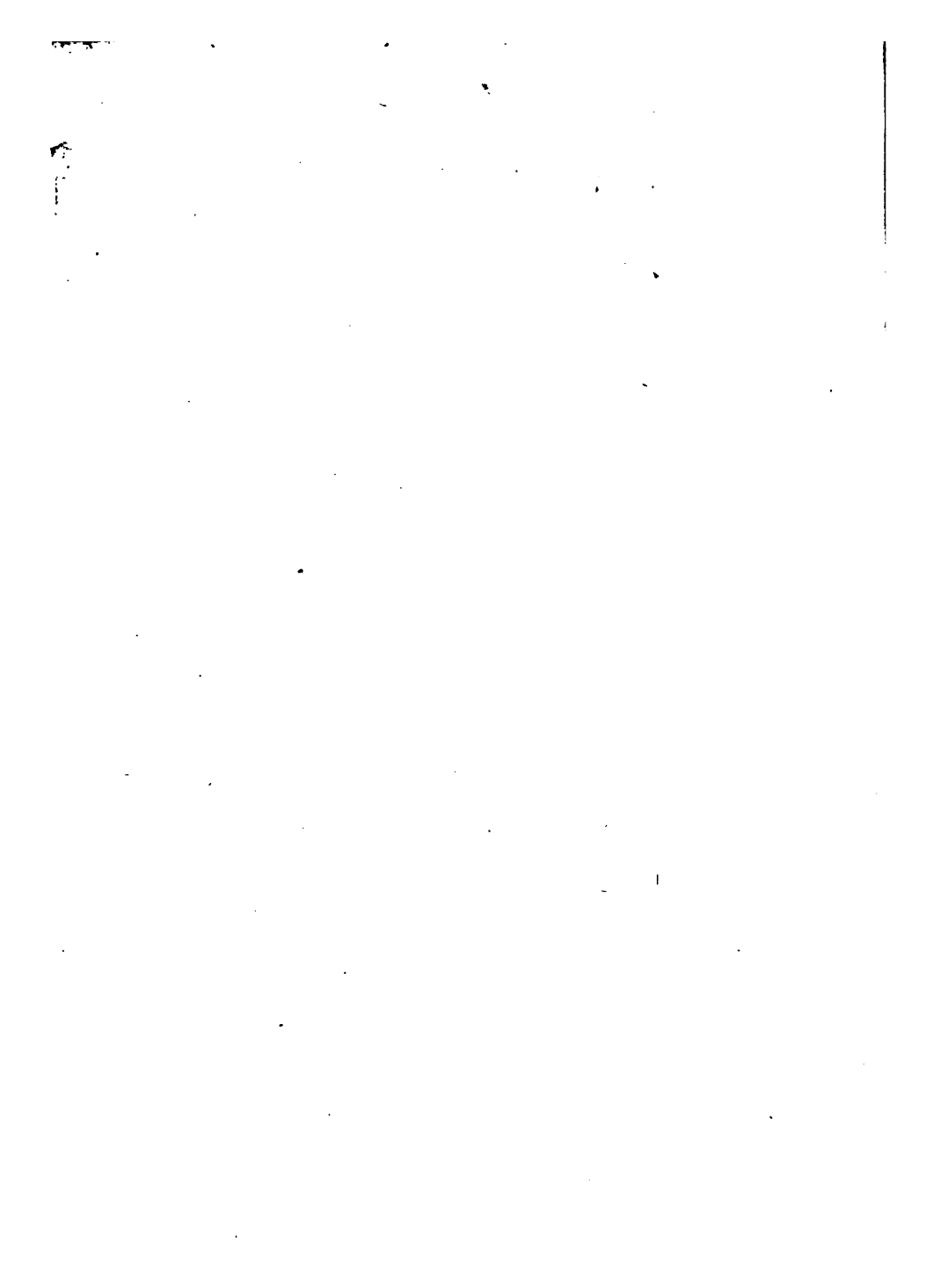
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SCIENCE AND TACTICS







SECOND EDITION.

# ELEMENTS OF MILITARY SCIENCE

BY

ARTHUR L. WAGNER,

Lieutenant-Colonel and Assistant Adjutant-General, U.S.  
Army; Gold Medalist of the Military Service Institution  
of the United States; Author of "Organization and Tactics,"  
"The Service of Security and Information," "The Campaign of  
Königgrätz," etc., etc., etc.

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Revised by

Major D. H. BOUGHTON, General Staff.

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## PREFACE.

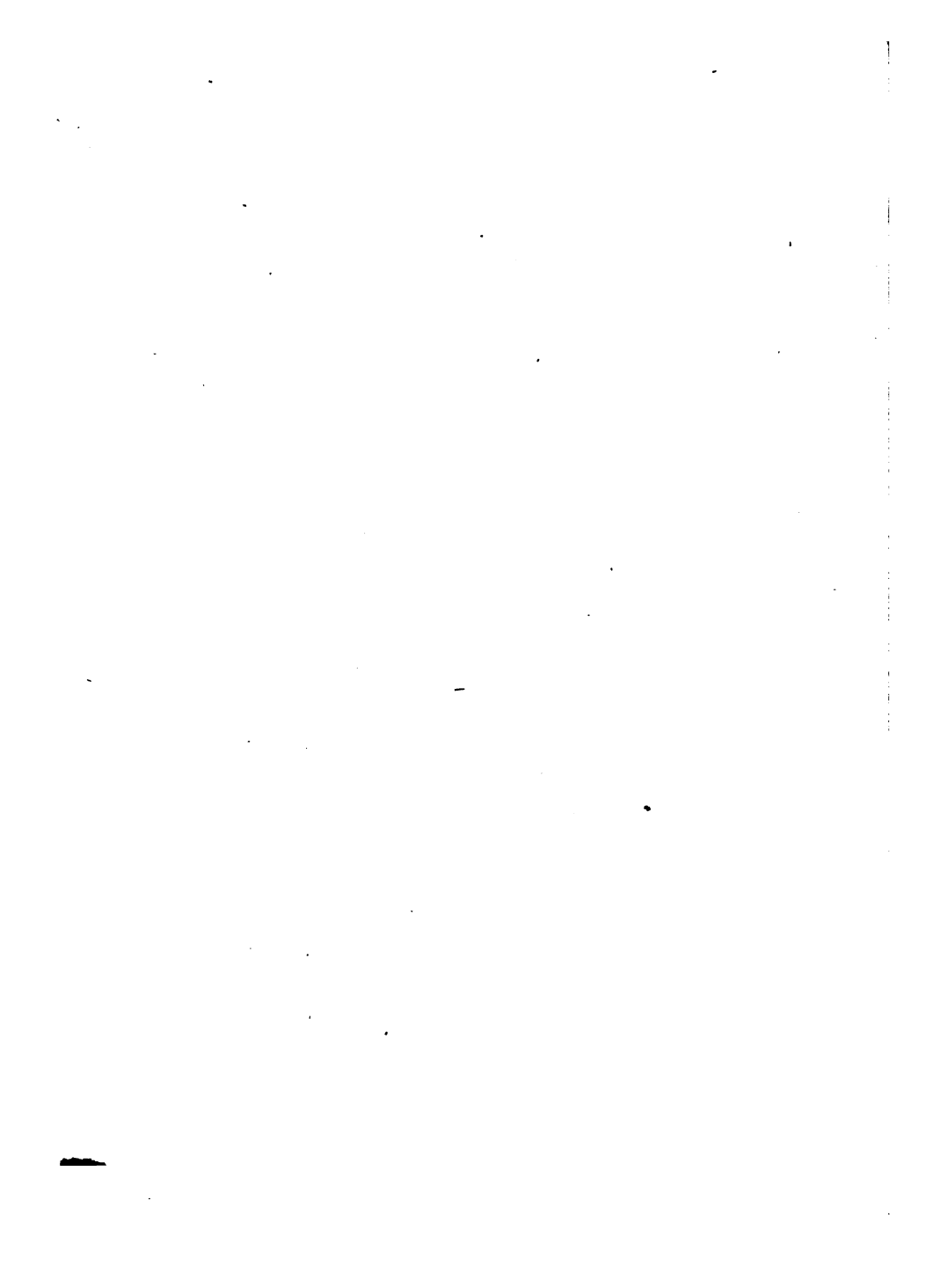
This little book is intended primarily for the students of such of our colleges as enjoy the services of instructors detailed from the Army. It is intended, therefore, for pupils who are not familiar with that complicated machine, a modern army. Hence an attempt has been made to present plainly and clearly, under the form of question and answer, the main points of the art military. It has been thought best to omit the subject of Strategy, as that is essentially a study for generals rather than for soldiers and subordinate commanders.

Resting, as this book does, on "Organization and Tactics" and "The Service of Security and Information," it is thought that the instructor can draw upon these sources for such illustrations, historical and other, as he may think suited to the requirements of his classes. By following this course, the pupil will have before him at all times the essential principles, while their application and illustration will be furnished by his instructor. For the section on Fortifications I am indebted to the "Manual of Military Field Engineering," prepared at the United States Infantry and Cavalry School.

I wish here to express my thanks to First Lieutenant C. DeW. Willcox, 7th Artillery, for valuable assistance in the preparation of the following pages; indeed, a great part of the preparation of the work has been delegated to him.

ARTHUR L. WAGNER,

*Lieut.-Colonel and Assistant Adjutant-General.*



## PREFACE TO THE REVISED EDITION.

While the general scope and purpose of Colonel Wagner's "Elements of Military Science" have been retained, it has been necessary, due to extensive changes in organization and regulations, to re-write much of the original work. In addition, new matter, such as the chapter on Orders, has been incorporated, and the whole rearranged to conform to the Field Service Regulations, the authorized basis of our tactical instruction.

The original method of presenting the subject matter by means of questions and answers has also been retained, as this is thought to be the best for stimulating the interest of beginners in the study of the military profession.

At the same time, an officer charged with the instruction of students in the art of war should never be satisfied with their being able to answer questions as propounded in this book, but should supplement such theoretical knowledge with many and varied problems in order that a facility may be acquired for applying what has been learned to actual situations in the field.

A student might be able to answer all the theoretical questions on military subjects that could be asked and still fail as a commander in war. The knowledge that is really useful is that acquired from actual experience, either in war itself, or in what is next best—the solution of problems that simulate the conditions of war. To be sure, the experience of

*Preface.*

others is valuable, but only in so far as he can make *practical* use of it himself. If in "sizing up" situations an officer is continually compelled to stop and think how someone else solved similar problems, his success as a military commander will not be great.

Military instruction, therefore, aside from drill, should consist mainly of problem work. Simple problems are the best, and they can be devised by any military instructor possessing ordinary imagination. Indoors, the problems can be worked out on suitable maps, not elaborate, but showing those details that affect the movements of troops in campaign. When practicable, however, the student should be taken into the field, anywhere, confronted with situations, and asked what he would do under the circumstances if he were commander. He should frequently be required to put his ideas into the form of field orders. There is no limit to the variety and number of problems that can be devised. Patrol leading, sending messages, problems in security, marches, convoys, attacking and defending positions, transportation and supply, etc., etc., will furnish ample situations for testing the ability of students to apply their theoretical knowledge.

D. H. BOUGHTON,  
*Major, General Staff.*

Army War College, Washington, D. C.  
July 31, 1909.

# CONTENTS.

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	Page.
<b>Preface</b> .....	1
<b>Preface to Second Edition</b> .....	3
<b>Organization and Tactics:—</b>	
<b>Organization and Discipline</b> .....	9
The Line.....	11
The Staff.....	15
The Arms Combined.....	16
The Trains.....	23
Line of Communication.....	25
Discipline.....	28
<b>Characteristics of the Three Arms</b> .....	29
<b>The Service of Information</b> .....	39
Patrolling.....	41
<b>Orders</b> .....	68
<b>The Service of Security</b> .....	86
Advance Guards.....	88
Flank Guards.....	103
Rear Guards.....	104
<b>Outposts</b> .....	119
<b>Marches, Shelter, Supply, and Transportation:—</b>	
<b>Marches</b> .....	149
<b>Shelter</b> .....	161
<b>Supply</b> .....	165
<b>Transportation</b> .....	172
<b>Combat:—</b>	
<b>The Offensive</b> .....	177
Infantry in Attack.....	185
Cavalry in Attack.....	193
Artillery in Attack.....	206
The Arms Combined.....	214
<b>The Defensive</b> .....	226
Care of the Wounded in Combat.....	241
<b>Field Fortifications</b> .....	245
Field Intrenchments.....	247





**PART I.**  
**ORGANIZATION AND TACTICS.**



## CHAPTER I.

### ORGANIZATION AND DISCIPLINE.

**Q.** State the two great divisions of the Art of War, and define each.

**A.** Strategy and Tactics. Strategy is the art of moving an army in the theater of war so as to increase the probability and consequences of victory, or to lessen the consequences of defeat. Tactics is the art of handling troops in the presence of the enemy.

**Q.** State and define other subdivisions of the Art of War.

**A.** Logistics and Military Engineering. Of these the former comprises everything relating to the movement and supply of armies, and the latter all that pertains to fortification and to siege operations.

**Q.** What subdivisions of Tactics are often made?

**A.** Minor Tactics and Grand Tactics\*; the first relating to the movements of small bodies and to the tactics of the respective arms, while the latter includes the combination of the several arms and the handling of armies in battles. Tactics may also be divided into Maneuver Tactics and Fighting Tactics; the first dealing with movements by which troops are brought into position on the battle-field, and the second with formations of attack and defense, and with the handling of troops in actual battle.

**Q.** Why should Organization and Tactics be considered together?

**A.** Strategy is largely independent of all details of organization, arms, etc., of an army, but Tactics

---

\*Also called Major Tactics and Tactics of the Arms Combined.

varies with all such details. For this reason Organization and Tactics should be treated together.

Q. Of what do the land forces of the United States consist?

A. The organized land forces of the United States consist of the Regular Army, and of the organized militia when called into the military (land) service of the United States.

In peace the *Army of the United States* consists, ordinarily, of the Regular Army; but whenever the United States is invaded or in danger of invasion from any foreign nation, or of rebellion against the authority of the Government of the United States, or the President is unable with the regular forces at his command to execute the laws of the Union, he may call into the military service of the United States all or any part of the militia organized as a land force.

In war, or when war is imminent, the Army of the United States, after the organized militia has been called into service, may be further augmented by the employment of volunteers.\*

Q. What are the principal factors affecting the organization of an army?

A. Those of administration and tactics.

Q. What is meant by administration?

A. The management of the affairs of an army, including questions of supply, transport, sanitation, pay and justice.

Q. Define tactical organization.

A. Tactical organization is the division of an army into parts, each having a special function, but all co-ordinated and arranged so as to secure prompt

---

\*The organized militia of the several States, Territories, and District of Columbia consists of 141 regiments of infantry, 68 troops, 49 batteries, 135 companies of coast artillery, 21 companies of engineers, and some signal and sanitary troops. Six divisions and thirty-seven brigades have been organized.

and powerful action of the whole in response to the will of the commander.

Q. What is a *tactical unit*?

A. A body of troops considered most suitable for one officer to command. Tactical units vary in size according to the rank of the commander, the larger units being composed of two or more of the next smaller units.

### THE LINE.

Q. What is the line of an army?

A. The term "line of an army" was originally applied to the infantry, as that arm formed the principal element of a line of battle; then it was extended to include the cavalry and artillery, and now, by act of Congress, engineer troops form a part of the line. Scientifically the term embraces all the *technically combatant* or fighting troops, and as such includes the signal troops, but at present these are classed as a part of the staff.

(a) *Infantry.*

Q. What is the smallest tactical unit of infantry?

A. The company. The war strength of the company in our service is 108 men.\*

Q. Give the subdivisions of the company.

A. The company is divided into two platoons, each under the command of a lieutenant; the platoon breaks up into two sections, each under a sergeant; and finally the sections are divided into squads of eight men each.

Q. Describe the tactical units larger than the company.

---

\*The maximum enlisted strength authorized by law for the various company units is as follows: Company of infantry, 150; Troop, 100; Battery, 190; Company of engineers, 164. The actual strength is fixed in orders or regulations issued by the War Department.

A. Four companies form a battalion, three battalions a regiment, two or more regiments (normally three) a brigade. Recently a machine gun platoon (two guns)\* has been attached to one of the battalions of each regiment. The company and regiment are administrative as well as tactical; the battalion and brigade are ordinarily tactical only. The brigade is the largest organization composed exclusively of infantry. It has a war strength in round numbers of 4,500 rifles. Though made up of only one arm of the service, it almost invariably acts in conjunction with the other arms.

Q. What is the present strength of our regular infantry?

A. Thirty regiments. In addition we have a Porto Rican regiment and the Philippine scouts.

(b) *Artillery.*

Q. Of what does the artillery of the United States Army consist?

A. Of the field artillery and coast artillery.

Q. What is the coast artillery?

A. That artillery charged with the care and use of the fixed and movable elements of land and coast fortifications, including the submarine mine and torpedo defences. It is organized into a corps with a chief having the rank of brigadier-general.

Q. What is the field artillery?

A. That artillery which accompanies an army in the field, and includes light artillery, horse artillery, siege artillery and mountain artillery (34 Stats., 861).

Q. Of what does our regular field artillery consist?

---

\*Vickers-Maxim. The Ordnance Department contemplates substituting a new machine gun fired from the shoulder.

A. At present of six regiments, organized as follows:

Light Artillery . . . . . 3 Regiments  
Horse Artillery . . . . . 1 Regiment  
Mountain Artillery . . . . . 2 Regiments

Q. How are these regiments armed?

A. The light and horse artillery, with the three-inch gun; the mountain artillery, with the mountain gun (cal. 2.95 inches); the latter is arranged for pack transportation.

Q. What is the smallest tactical unit of the artillery, and how many guns does this unit contain?

A. The battery contains four guns\* and twelve caissons; in addition, the battery has a store wagon and forge, and four forage and ration wagons.

Q. How is the battery on a war footing subdivided?

A. Into nine sections; the first, second, third and fourth are gun sections (a gun section is a gun with its caisson); the fifth, sixth, seventh and eighth are caisson sections (a caisson section consists of two caissons); the ninth section includes the other vehicles that form part of a battery. The first eight sections are formed into four platoons of two sections each; the platoons are commanded by lieutenants.

Q. Describe the units larger than the battery.

A. Three batteries form a battalion, and two battalions a regiment.

Q. What ammunition is used by our light artillery?

---

\*The German battery has 6 guns; the Japanese, 6; the English, 6; the French, 4; the Austrian, 8; the Russian, 8—divided into two half-batteries of 4 guns each. The Russian horse battery has 6 guns.

A. The shrapnel and high explosive shell. A projectile (without case) of either class weighs fifteen pounds. A shrapnel shell carries 252 balls.

Q. What ammunition is used by our mountain artillery?

A. Shrapnel.

Q. What types of cannon are used by field artillery?

A. The long gun for flat trajectories, the howitzer for curved fire, and the mortar for high-angle fire. At present our field artillery has no organization armed with the howitzer or mortar, or with heavy field guns, though the Ordnance Department has such artillery in store or in process of manufacture.

(c) *Cavalry.*

Q. What is the smallest tactical unit of cavalry in our service?

A. The troop, with a war strength of about 90 men.

Q. How is the troop subdivided?

A. Into two, three or four platoons, according to its strength. Each platoon is divided into two squads.

Q. Describe the units larger than the troop.

A. Four troops form a squadron, three squadrons a regiment, and two or more regiments (normally three) a brigade. Recently a machine gun platoon has been attached to one of the squadrons of each regiment. The troop and regiment are administrative as well as tactical units; the squadron and brigade are ordinarily tactical only. When a cavalry brigade is operating independently, it usually has horse artillery attached.

Q. How is cavalry organized in foreign armies?



A. In most foreign armies the smallest tactical unit is the squadron of about 150 to 160 men. The regiments are smaller than ours, being composed of four to six of their squadrons. In France and Germany the regiment has five squadrons, the fifth forming a regimental *dépôt*.

(d) *Engineers.*

Q. How are our regular engineer troops organized?

A. Into a band and three battalions of four companies each; three of the companies of each battalion are pioneer and one a ponton company.

Q. What is the duty of the pioneers?

A. To make and repair roads and bridges; to lay out and construct, or supervise the construction of, trenches and other field works; to prepare entanglements and other obstacles, construct siege works, make demolitions, etc.

Q. What is the duty of the pontoneers?

A. To construct floating bridges.

Q. What is a bridge train?

A. A train of wagons carrying pontons and other bridge equipage.

Q. How are bridge trains divided in our service?

A. Into *heavy* (wooden pontons) and *light* (canvas pontons) trains. A train is subdivided into four *divisions*, each complete in itself. A division of a heavy train will make a bridge 75 yards long; a division of a light train will make a bridge 62 yards long.

### THE STAFF.

Q. What is meant by "the staff"?

A. In our service the term has two significations:

1. It is used in contradistinction to *the line*, and embraces all of the technically non-combatant troops,

departments and corps of the Army—viz., the General Staff Corps, Adjutant-General's Department, Inspector-General's Department, Judge-Advocate-General's Department, Quartermaster's Department, Subsistence Department, Medical Department, Pay Department, Corps of Engineers, Ordnance Department, Signal Corps, Bureau of Insular Affairs, and Military Academy.

2. The term "staff" is also applied to those officers, whether of the *line* or *staff* of the Army, assigned to commands to assist the commanders in the control thereof. The aids authorized by law for a general officer are called his personal staff.

Q. What commands have staffs?

A. Battalions and higher units have staffs whose number and rank vary with the size and nature of the command. In units larger than a brigade, and in separate commands under general officers, the staff service is under an officer, ordinarily of the general staff, designated as chief of staff.

Q. What is meant by "headquarters"?

A. The *headquarters* of a military command is the commander's official residence or place from which his orders are issued; the term is also used to designate collectively the commander, his staff and *personnel* attached thereto.

### THE ARMS COMBINED.

Q. What is meant by "the arms combined"?

A. The union of the combatant arms and of the necessary staff into commands for the prosecution of military undertakings on a large scale.

Q. What is the composition of a division?

---

*Note.*—The division is the great administrative and tactical unit, and forms the basis for army organizations.

A. A division consists of:

- 2 or more brigades of infantry, 3 being the normal infantry component;
- 1 regiment of cavalry;
- 1 regiment of field artillery, 3 battalions, or 2 regiments of 2 battalions each;
- 1 pioneer battalion of engineers;
- 1 field battalion of signal troops;
- 4 ambulance companies;
- 4 field hospitals;
- 1 ammunition train;
- 1 supply train;
- 1 pack train.

Q. What is the cavalry attached to a division or to a smaller infantry unit called?

A. Divisional cavalry.

Q. What is the organization of the engineer and signal battalions in a division?

A. The engineer battalion has three and the signal battalion two companies each.

Q. What is the strength of a division?

A. About 20,000 men.

Q. Give the composition of a *cavalry brigade*.

A. A cavalry brigade consists of two or more cavalry regiments, three being the normal organization.

Q. What is the composition of a *cavalry division*?

A. A cavalry division consists of:

- 2 or more cavalry brigades, 3 being the normal cavalry component;
- 1 regiment of horse artillery;
- 1 pioneer battalion of engineers (mounted);
- 1 field battalion of signal troops;
- 2 ambulance companies;

2 field hospitals;  
1 ammunition train;  
1 supply train;  
2 or more pack trains.

A light bridge train is attached when necessary.

Q. How are commands larger than a division organized?

A. A command composed of two or more divisions, and the necessary auxiliary troops, constitutes a *field army*. It receives a numerical or territorial designation. The auxiliary troops forming part of a field army ordinarily consist of:

1 cavalry division;  
1 brigade of heavy artillery;  
1 ponton battalion of engineers;  
1 aëronautic and wireless battalion of signal troops.

A division or brigade serving alone (independent) has the necessary auxiliary troops attached.

A command composed of two or more field armies constitutes an *Army*. It receives a territorial designation.

Q. What considerations govern in the grouping of divisions into field armies?

A. A field army should consist of not fewer than three nor more than six divisions. A field army of more than six divisions is unwieldy; if of fewer than three divisions, then the necessity of having a reserve causes the unity of one of these to be broken up.

Q. Upon what does the question of the proportion of the three arms (infantry, cavalry and artillery) depend?

A. Upon the nature of the theater of operations, the composition of the enemy's forces, the special

adaptability of the people of the country to one arm rather than to another, and even on the casualties of the campaign.

Q. State the rule for the proportion of artillery in general, and also under unfavorable circumstances.

A. Generally from three to four guns for every 1000 men of the other arms. This proportion would, however, have to be reduced in difficult, thickly wooded, or mountainous country, or, indeed, in any country where the roads are few and poor. While the proportion of guns to infantry cannot be definitely fixed it may be safely prescribed that the guns with an army should be as many as can be promptly brought upon the field of battle and effectively used there.

Q. How does the proportion of cavalry vary, and what should be the rule with us?

A. The proportion of cavalry to the other arms varies exceedingly. In our own case it ought to be such as to enable our cavalry speedily to overwhelm any to which it may be opposed, no matter what the proportion may be to the other arms.

Q. What are the principal duties of a general commanding an army, and how is he relieved of a part of them?

A. He is charged with the maintenance of the efficiency of his army and with the proper conduct of military operations, and his responsibility extends to a multitude of details, the personal supervision of which is beyond the powers of any one man—*e. g.*, supply, equipment, the preparation and prompt communication of orders, etc. These details are attended to by his *staff*, and on the quality of the staff of an army depends in the highest degree its efficiency.

**Q.** State the duties and responsibilities of the chief of staff.

**A.** The chief of staff gives expression in written orders to the will of the commander, and attends to all his military correspondence. He is responsible for all the details involved in the general instructions of the commanding general, relative to the marching, camping, and security of the army; he sees to it that all orders given are properly carried out, and must be prepared at any moment to give his chief an accurate account of the numbers, position, and condition of the general command.

**Q.** What officers should be under the command of the chief of staff, and what officers compose the staff of an army?

**A.** The chief of staff should have under his command such officers of the Adjutant-General's and of the Inspector-General's departments as may be necessary members of the commander's staff. These, with the *aides-de-camp* of the commanding general, the chief of artillery, the chief or inspector of cavalry, the chief engineer, the chief signal officer, the provost-marshal-general, and one officer from each of the *administrative* departments make up the staff of an army?

**Q.** What are the duties of the chiefs of artillery and of cavalry, and of the chief engineer?

**A.** The chief of artillery has general charge of the artillery material of the army, is inspector of artillery, and is the principal assistant of the commanding general in all that relates to his arm. He does not command, except when the artillery of two or more divisions is combined in action.

The chief of cavalry should be in active command of all the cavalry of the army, and habitually remains with the force under his command.

The chief engineer officer has duties analogous to those of the chief of artillery. He has general charge of all engineer operations on a large scale. The commander of the battalion of engineers forming part of a division is chief engineer of that division.

Q. What are the duties of the chief signal officer?

A. The chief signal officer has charge of the main *lines of information*, balloons and other air craft, and commands the signal troops. The commander of the battalion of signal troops forming part of a division is chief signal officer of that division.

Q. What are lines of information?

A. Lines by which messages, orders, etc., are transmitted between a commander and his subordinates, or between parts of a command. Information is transmitted by telegraph, telephone, wireless, visual signals or messenger service.

Q. What are the duties of the provost-marshal?

A. He preserves proper police in the army, protects the inhabitants from pillage and violence, arrests stragglers and deserters, controls camp-followers, and has charge of prisoners and of deserters. He is in addition the chief of the secret service, commander of the provost guard, and supervises the postal service.

Q. Enumerate the staff officers of the administrative departments, and state the duties of each.

A. As the name implies, the administrative staff officers have charge of general questions of administration, supply, and equipment. They are:

The *judge-advocate* at the headquarters of the army, who has general supervision of the proceedings of courts-martial and of courts of inquiry, etc.

The *commissary of musters*, who makes all musters into and out of the service, and exercises general supervision over all muster and pay-rolls.

The *chief ordnance officer*, who is charged with the supply of arms, ammunition, etc., for the army.

The *chief quartermaster*, who is responsible for forage, transportation, clothing, camp and garrison equipage, and shelter.

The *chief commissary* of subsistence, who has charge of the food-supply of the army.

The *chief paymaster*, who pays the army.

The *chief surgeon*, who has charge of the sanitary service, and of everything relating to the care of the sick and wounded.

Q. What is the strength of the sanitary *personnel* of a division?

A. Nearly 1,000 officers and enlisted men.

Q. What is the staff of a division?

A. The staff of a division is practically the same as that of an army, though of less rank.

Q. What is the difference between the "fighting strength" and the "ration strength" of an army?

A. By "fighting strength" is meant all the men exclusive of officers who take position in the line of battle and fight; the "ration strength" is equal to the sum of the "fighting strength" and the non-combatants.

Q. State the proper rank of the commanders of the different organizations.

A. Of a company, troop, or battery...captain;  
battalion... . . . .major;



regiment . . . . . colonel;  
brigade . . . . . brigadier-general;  
division . . . . . major-general;  
field army . . . . . lieutenant-general;  
Army . . . . . general.

Q. What is the necessity for recruitment?

A. Losses from whatsoever source begin with the campaign itself, and generally reach a maximum at the time of the severest fighting, which is also the period of greatest fatigue and hardship. Stragglers and deserters also reduce the strength of an army. Hence the necessity of recruiting from the very outset.

Q. Give the two general methods of recruiting an army.

A. First, by replacing losses in each regiment by recruits from its own depot; second, by adding new regiments to the army.

The first system prevails in Europe, and is undoubtedly the better. The second system was generally employed in the United States during the Civil War, and was pernicious in the extreme.

#### THE TRAINS.

Q. How is the wheel transportation accompanying a division divided?

A. Generally into four classes, as follows:

1. Combat trains;
2. Field trains;
3. Ammunition trains;
4. Supply trains;

Q. Describe each.

A. The combat trains consist mainly of those vehicles carrying extra ammunition, and that may be said to accompany the troops into actual combat.

They are usually attached to battalions, and in combat are stationed as near the firing-line as possible.

The field trains carry the daily supply of rations and forage, the baggage of the troops and tentage (if any). They are assigned to the smaller organizations, but on the march and in combat they are generally united in rear of the division, and are then called the field train of the division. They habitually join their organizations at the end of each day's march.

The ammunition train carries a reserve supply of ammunition for the artillery and small arms.

The supply train carries a reserve supply of rations, forage, and sanitary *matériel* for the entire division.

In addition, the ambulances of a division (48) are called the ambulance train.

Q. How much small-arms ammunition per man is carried by a division?

A. 330 rounds;\* distributed as follows:

90 rounds on the man;

120 rounds in combat train;

120 rounds in ammunition train.

Q. How much ammunition per gun is carried for the artillery?

A. About 500 rounds;\* of which 358 are carried with the battery and the remainder in the ammunition train.

Q. What is the total wheel transportation of a division at full strength?

A. About 700 wagons and 3,000 animals, exclusive of caissons attached to batteries.

---

\*An equal amount is held at or near the head of the line of communications to replenish ammunition trains during combat.

Q. What is the usual position of the bridge trains, heavy artillery, and of the aëronautic and wireless battalion of signal troops with a field army?

A. In rear of the divisions, generally near the army headquarters. They are sent to the front when required. For purposes of administration, marching and camping, these auxiliary troops are generally united into a command called the auxiliary division.

### LINE OF COMMUNICATIONS.

Q. How are armies maintained in the field?

A. Partly from supplies procured in the theater of operations, but mainly by shipment from the base of operations.

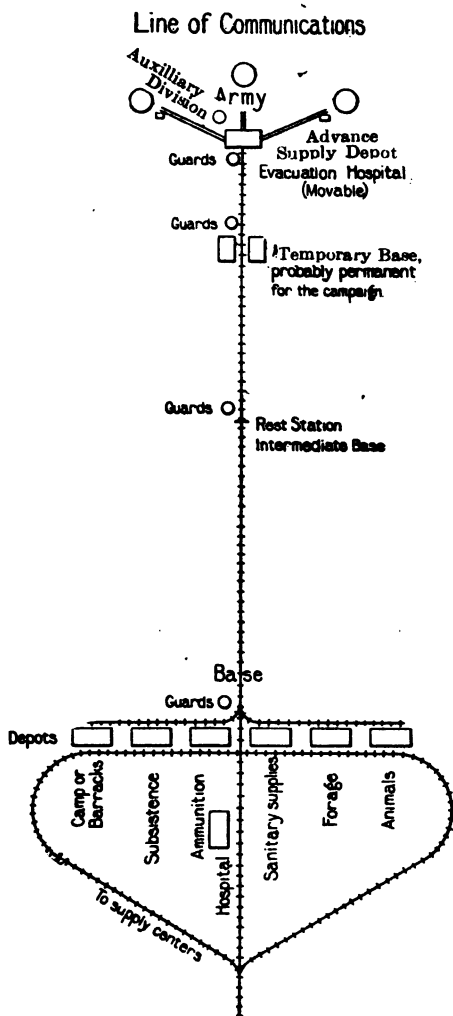
Q. What preparations are made for supplying an army when it takes the field?

A. For each field army or important expeditionary force about to take the field, a *base* is selected and equipped, and a service of the *line of communications* is established, both under the control of the commander of the field army or expeditionary force, unless otherwise ordered by the War Department.

Q. What is a line of communications?

A. The line by which supplies are forwarded to an army in the field, and the sick and wounded are returned to home stations. It includes the depots and hospitals at the *base* and the supply depots and evacuation hospitals at the *front*. The transportation may be by rail, water, the ordinary roads, or any combination of these.

Q. Draw a diagram giving a general view of a line of communications.

*Elements of Military Science.*

**Q. How is the line of communications organized?**

**A.** A commander is appointed and provided with the necessary troops and staff. His staff includes such of the following subordinates as the situation requires:

- A commander at the base;
- A chief quartermaster;
- A chief of the railway service;
- A chief of railway construction;
- A chief of transport by water;
- A chief commissary;
- A chief ordnance officer;
- A chief paymaster;
- A chief surgeon;
- A chief signal officer;
- A provost-marshal.

**Q. What is the duty of the commander of the line of communications?**

**A.** To keep the army provided with ample supplies of all kinds that may be required, and to remove the sick and wounded to the base as rapidly as possible.

**Q. Where should the advance supply depot be maintained?**

**A.** Practically with the headquarters of the army; the rail or water head is kept as near the army as possible. If the army covers a broad front, supply depots and evacuation hospitals are established for the flanks, and communication is maintained with them by field railways or wagon transportation.\*

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\*For details of organization, see the Field Service Regulations.

**DISCIPLINE.**

**Q.** Define discipline.

**A.** Discipline is that quality possessed by efficient soldiers which causes each to appreciate and accept without question the powers and limitations of his rank; which inspires each with confidence in the military steadfastness of his comrades, and makes obedience to his lawful superiors a second nature. The object of discipline is in every case the same: to cause the army to respond to the will of the commander.

**Q.** What two general methods are there for promoting discipline, and which is the better?

**A.** Rewards and punishments; and of these the former is the better. In practice both are utilized.

**Q.** What are the best evidences of true discipline?

**A.** The unmurmuring endurance of hardships by the soldiers and their willing, energetic, and persistent efforts to perform their whole duty in the presence of the enemy, a minimum of stragglers on the march and of skulkers in battle, are the best proof of good discipline.

**Q.** What is the method employed in the United States Army for the military police of the army?

**A.** Troops are detailed for duty as provost guard, preference being given to regiments and battalions that have suffered severely in action. The provost guard of a division is of varying size, but rarely exceeds a full battalion or a depleted regiment.

## CHAPTER II.

### CHARACTERISTICS OF THE THREE ARMS.

Q. State the powers and limitations of *infantry*.

A. Both numerically and in the effects of its action the infantry is the most important part of the army. It can operate on all kinds of ground, is equally adapted to offensive and to defensive action, and can act either at a halt or in motion. It is, however, limited to the pace of the individual man, and its action is confined to the range of the rifle.

Q. Describe the arms and action of infantry.

A. Its weapons are the rifle, bayonet and machine gun; its action, fire, shock, and a combination of these two. Of course, fire-action is the most important, but it must be supplemented, in general, by real or threatened shock. Actual shock is very rare.

Q. What is the pace of infantry?

A. At drill, 100 yards a minute, or 3.4 miles an hour; on the road, 88 yards a minute, or 3 miles an hour—including halts, from 2.5 to 2.75 miles an hour. Double time on the road, 147 yards a minute. The state of the weather, the nature of the roads, and other conditions beyond human control, may greatly reduce the rate.

The average march of infantry, and of mixed commands consisting partly of foot troops, is 15 miles a day; but in extensive operations, involving large bodies of troops, the average is about 12 miles a day. Small commands of seasoned infantry marching on

good roads in cool weather, can average 20 miles a day.

Q. State the essential qualities of infantry.

A. The value of infantry depends on the effectiveness of its fire-action, and on its ability to avoid destructive losses from the fire of the enemy. Hence the infantry soldier must be carefully trained in fire discipline, and in tactical maneuvers; he must be armed with the magazine rifle; he must carry at least 90 rounds on his person; he must be equipped with a serviceable intrenching tool, and be provided with a bayonet as a weapon of last resort.

Q. What is the extreme range of the U. S. magazine rifle?

A. 3.1 miles.

Q. What is the point-blank danger space of the rifle when fired from the lying down position?

A. About 600 yards.

Q. What is the penetration at 1,000 yards?

A. Moist sand, 12½ inches; dry sand, 7½ inches; loam, 18½ inches.

Q. Of what does the action of *cavalry* consist?

A. Of shock-action, of dismounted fire-action, of mounted fire-action, and of detached action.

Q. When is shock-action of value, on what does it depend, and how is it supplemented?

A. Shock-action is purely offensive, and of course implies motion; hence its effect depends on the weight and velocity of the horse and rider, the horse being the real weapon, and the saber, lance, etc., only supplementary.

Q. Why should cavalry be armed with the rifle?

A. Cavalry should be armed with the rifle in order not to be helpless on the tactical defensive, and



in order that it may be capable of independent operations. The opportunities of dismounted fire-action are many; as, for example, the seizure and holding of an important point until the infantry can come up, the quick reinforcement of hard-pressed infantry, etc.

Q. When may mounted fire action be used?

A. Mounted fire-action with the rifle is rare, but it may be used by skirmishers in pushing back a retiring line of the enemy, or in covering a retreat when pursuit is so strong as to make it unsafe to dismount or inexpedient to charge.

Q. What is the detached action of cavalry, and why is it specially important?

A. Detached action includes all scouting, reconnoitering, and raiding duty, whether by large or by small bodies of cavalry, by a mere patrol, or even by a single scout. On this sort of action depends the safety of an army and the soundness of the plans of the commanding general.

Q. How is cavalry generally classified in foreign armies?

A. As heavy, medium, and light; it is also classified according to arms and equipments, as cuirassiers, lancers, dragoons, and hussars.

Q. Describe heavy and light cavalry and their uses.

A. Heavy cavalry consists of large men on large horses, and is especially used for shock-action; light cavalry, of small and active men on fleet and enduring horses, for detached action.

Q. What is medium cavalry?

A. A mean between the other two in weight and employment. The cavalry of the United States Army is medium, and is intended for any kind of action.

Q. Describe the equipment of the various classes of cavalry.

A. Heavy cavalry until recently had the cuirass and helmet, but these are now discarded except on occasions of ceremony. Hussars are light cavalry. Lancers are armed with the lance. Dragoons are armed and trained to fight either mounted or dismounted. All troopers now have the carbine or rifle, and are trained more or less in fire-action.

Q. To what type are all cavalries approaching, and why?

A. To the type of the American cavalryman of 1864-65; for all must know how to operate independently, and be able to recognize and seize opportunities to fight either mounted or dismounted.

Q. What are the weapons of the trooper in the United States and in Europe?

A. In the United States, the saber, magazine rifle, and revolver; in Europe, the lance is generally added and the revolver discarded. Machine guns are now attached to each of our cavalry regiments.

Q. What is the pace of cavalry under varying conditions?

A. The rates prescribed for drill are:

The walk 4 miles, the trot 8 miles, and the gallop 12 miles an hour. The average walk of a horse is at the rate of a mile in 16 minutes or  $3\frac{1}{4}$  miles an hour; the average trot, a mile in 8 minutes or  $7\frac{1}{2}$  miles an hour.

In the field the usual gait is the walk of  $3\frac{1}{4}$  miles an hour—including halts,  $3\frac{1}{4}$  to  $3\frac{1}{2}$  miles an hour.

Under favorable conditions the walk and trot at

ternate, the rate being about 5 miles an hour after the first halt. The periods of trotting alternating with the walk should not, as a rule, exceed 10 or 15 minutes; too frequent changes are undesirable. When practicable, distances between units are increased to enable advantage to be taken of level stretches of ground for trotting. As a rule, the first two and last two miles are made at an easy walk.

The average march of cavalry, after men and animals are hardened, is 25 miles a day.

The gait should be uniform and show enough to enable all the horses to keep up without undue exertion. A fast walk at the head causes trotting in rear; a fast trot renders the gallop necessary. This lack of uniformity is extremely fatiguing to both men and horses, and ruins cavalry commands even on ordinary marches.

Q. State the powers and limitations of cavalry.

A. It can rapidly transport itself to the point where it is needed, and can take advantage of opportunities that would vanish before the infantry could strike; it can check an enemy by its manifest readiness to strike; it can perform reconnaissance work wholly impossible for infantry, and without it adequate pursuit is out of the question. It costs, however, about one and a half times as much as infantry, and its use on the field of battle is rarer than that of the other two arms.

Q. Into what is *artillery* primarily divided?

A. The most logical division is into field, siege and sea-coast artillery.

Q. Define field artillery.

A. Field artillery is the artillery that accompanies an army in the field; it is divided into light and heavy.

Q. What is light artillery?

A. Light artillery is so called on account of its mobility, the heaviest guns being drawn by six horses; it forms the great mass of artillery of armies in the field, and includes in addition to what may be called divisional artillery, horse artillery and mountain artillery.

Q. What is divisional artillery?

A. The artillery that forms a component part of divisions (infantry). In our service it is armed with the 3-inch breech-loading gun, though it is probable that a 3.8-inch howitzer will be added. In this artillery the cannoneers march by the pieces or ride on the limbers and caissons.

Q. For what is horse artillery specially designed, and what is its essential characteristic?

A. For service with cavalry; and therefore its essential characteristic is mobility. The cannoneers are consequently mounted. In our service it is armed with the 3-inch breech-loading gun.

Q. Describe mountain artillery?

A. That artillery used in mountainous regions or where the roads are bad and traction difficult. In our service the gun used is the mountain gun of 2.95-inch caliber, though the Ordnance Department contemplates providing a 3-inch gun.

Q. What is heavy field artillery?

A. Those guns accompanying an army in the field, but so heavy that they possess little mobility; they are usually drawn by more than six horses.

Q. What is siege artillery?

A. Siege artillery embraces those guns used in siege operations, but which are too heavy to accompany an army in the field. When siege guns are required, they are brought to their position by rail or other transportation specially prepared.

Q. What are the arms of field artillery?

A. The gun and howitzer. The men are armed with the revolver and in some cases, as in mountain artillery, with the bolo.

Q. What is the pace of artillery under various conditions?

A. The same as that of the command of which it forms a part.

Q. State the powers and limitations of artillery.

A. It is the only arm that can destroy material objects at a distance, and is largely independent of the personal factor, as its action is at a distance from the enemy. It is incapable of independent action, and is limited to fire-action, and this only when at a halt in battery. It is expensive and hard to train. From its nature it is bulky, taking up a great deal of space on the march. Lastly, it can be neutralized by the destruction of its *matériel* as well as by that of its *personnel*.

Q. What is the range of light artillery?

A. Under favorable conditions, good results may be expected at 3 miles; but, as a rule, 3500 yards may be taken as the extreme effective range. Under 2500 yards its fire is decisive.

Q. State the kinds of artillery fire, and describe each.

A. Direct fire, from guns using service charges, the angle of elevation being less than 15 degrees;

Indirect or curved fire, from guns using reduced charges, and from mortars and howitzers at any angle less than 15 degrees;

High-angle fire, from guns, mortars, and howitzers, at any angle greater than 15 degrees;

Frontal fire, in which the line of fire is perpendicular to the hostile front;

Oblique fire, in which the line of fire is oblique to the hostile front;

Enfilade fire, from guns in the prolongation of the enemy's line; if this fire sweeps the front of a defensive line, it is called flanking fire;

Reverse fire, on the rear of the enemy;

Cross fire, in which the projectiles from guns in different positions cross one another's paths on or in front of the enemy's line.

Q. Give the classification of projectiles.

A. Shrapnel and high-explosive shell.

Q. Describe the shrapnel.

A. The shrapnel is a hollow steel projectile filled with bullets, and has a bursting charge just powerful enough to strip the head from the case and to add about 250 feet per second to the velocity of the balls at the moment of burst. At effective ranges the ground covered by a shrapnel is elliptical in form, the ellipse not exceeding 300 yards in depth by 25 in width. The shrapnel is used against animate objects.

Q. Describe the high-explosive shell.

A. It is steel shell filled with about one pound of the service high-explosive—a secret compound. The

high-explosive shell is used against material objects.\*

Q. State the kinds and uses of fuses.

A. Fuses are used to burst the shell and shrapnel. There are three kinds:

1. Time fuse, ignited by the shock of discharge of the piece, and so arranged as to burn a certain predetermined length of time before the fire reaches the bursting charge;

2. Percussion fuse, igniting the bursting charge by the shock of impact;

3. Combination fuse, possessing the properties of the two others.

Q. Define the term "rapid-fire" gun.

A. A rapid-fire gun is a gun using fixed ammunition and constructed so as to facilitate to the highest degree the operations of loading, laying (aiming), and firing. By "fixed ammunition" is meant ammunition in which the projectile, charge, and primer are combined in a single unit.

Q. Define the term "machine gun."

A. A machine gun is a gun so arranged that it may be loaded and fired continuously by means of a suitable mechanical contrivance at the breech, the empty cartridges being automatically ejected. A machine gun may have a single barrel, or a number of barrels with parallel axes. Machine guns in our service use small arms ammunition. The latest guns of this type utilize a portion of the force of the powder gas to perform the operations of loading and firing.

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\*The Ordnance Department is now experimenting with a projectile that unites the characteristics of both high-explosive shell and shrapnel.

**Q.** What two kinds of cover may be obtained for field guns?

**A.** Artificial and natural. Natural cover is any feature of the ground that will intercept or turn a projectile, or so conceal the pieces as to deceive the enemy as to their location. Artificial cover consists of ordinary intrenchments, of gun-pits, and of portable shields.



## CHAPTER III.

### THE SERVICE OF INFORMATION.

Q. How is military information classified?

- A. 1. That collected by the General Staff in time of peace;  
2. That obtained by troops in the field after the outbreak of hostilities.

The latter is absolutely essential to enable a commander in the field to form a plan of action.

Q. How is information in the field obtained?

A. From various sources—higher commanders, adjoining troops, inhabitants, newspapers, letters, telegraph files, prisoners, deserters, spies, maps, and reconnaissances. Knowledge of the terrain, always essential to a correct understanding of the situation, is obtained from a careful study of available maps, supplemented by thorough reconnaissance.

Q. What is the function of an *information division*?

A. At the outset of a campaign the commander of an army or of a separate command in the field organizes an information division, where all information of the enemy and of the theater of operations is sent without delay. This division classifies the information brought in, and prepares the necessary field maps.

Q. What is meant by *reconnaissance*?

A. Reconnaissance is the military term used to designate the work of troops or individuals when gathering information in the field.

Q. By what troops is the work of reconnaissance performed?

A. Reconnaissance at a distance, that is, to find the enemy's main body, is generally the work of the *independent* cavalry, while reconnaissance to guard the command against surprise (security) is performed by *divisional* cavalry and infantry.

Q. What is independent cavalry?

A. That cavalry which the supreme commander of an army or separate command retains under his own orders and sends on special missions. The immediate commander of such cavalry acts, within the scope of his instructions, on his own initiative and is responsible to the supreme commander only.

Q. What is the duty of independent cavalry on reconnoitering duty?

A. Generally to find the enemy's main body and then to preserve contact with him; in these operations it also more or less screens the command in rear.

Q. How is this duty performed?

A. By pushing boldly out one or more marches in advance of the army and defeating the enemy's cavalry; his main body can then be located without difficulty.

Q. In these operations what is the rule as to the conduct of the independent cavalry?

A. The commander keeps the bulk of his forces well in hand—maintains a *central mass*—ready to strike the enemy's cavalry whenever the latter is encountered. From this central mass small detachments are sent out in the direction of the enemy; these detachments, by means of scouts and small

groups of men called patrols, locate the enemy's cavalry.

Q. Suppose small detachments, such as troops or squadrons, are unable to make headway, what is done?

A. When for any reason, such as the nature of the country, activity of the enemy, etc., it is inadvisable to send out small detachments, larger ones are detailed to operate along parallel roads or in specially designated sections of the country. These detachments cover themselves with scouts and patrols and keep in constant touch with the central mass.

Q. How much front can independent cavalry cover?

A. For a brigade of three regiments the limit is about ten miles.

Q. When may the duty of screening a command by individual cavalry become of great importance?

A. When it is necessary wholly to conceal the command; for instance, during a turning movement.

Q. What is *divisional cavalry*?

A. That cavalry which forms part of a division (infantry), or is attached to smaller infantry units.

Q. What is the duty of divisional cavalry?

A. Primarily to assist in guarding the command (security) of which it forms a part against surprise, annoyance, or observation by the enemy. It usually enters into the composition of advance, flank, rear, and outpost guards, and when so employed is known as advance guard, flank guard, rear guard, and outpost cavalry, as the case may be.

#### PATROLLING.

Q. How is reconnaissance work generally performed?

A. By means of small detachments called reconnoitering patrols.\*

Q. What is the rule as to the strength of reconnoitering patrols?

A. They should be no stronger than is necessary to accomplish their mission. They vary in size from three men to a troop or company. Small patrols have great mobility, are easily concealed, and do not draw heavily on the fighting strength.

Q. What arm is generally best suited to patrolling, and why is the union of infantry and cavalry on this duty ordinarily not desirable?

A. Cavalry is the best arm for patrolling. The composition of the patrol, however, depends upon the ground to be reconnoitered, the distance to which the reconnaissance is to be extended, and the hour at which the patrol is sent out. Infantry is preferable to cavalry for patrolling only at night, or in a very close and broken country. It is often advisable to attach a few troopers to an infantry patrol merely as mounted orderlies, but no further union of the two arms on this service should ordinarily be contemplated. When bicyclists are with a command, they are, on good roads, valuable adjuncts.

Q. What is the composition of a small patrol?

A. Experienced soldiers should be detailed, and if no officer or non-commissioned officer is available, an intelligent private should be selected as *leader* to command the patrol, and the others ordered to obey him. It is desirable that at least one member of the

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\*The term *patrols* is used to designate small detachments employed for a variety of purposes, the name of the detachment indicating its duty, as: visiting, connecting, combat, exploring, reconnoitering, flanking, harassing, pursuing patrols, etc.

patrol should be able to speak the language of the country in which the army is operating.

**Q.** How should the patrol be instructed?

**A.** The patrol commander should be given clear and definite instructions in regard to what is known about the enemy, the object of the reconnaissance, the nature of the ground to be reconnoitered, whether he is to reconnoiter in one direction or in several, how long he is to remain out, where his reports are to be sent, and, if other patrols are sent out at the same time, the particular route which he is to follow. He should have a map, watch, field-glass, compass, message blanks, and pencils. Orders and instructions are committed to memory, and great care taken that papers are not captured by the enemy.

**Q.** How should the patrol be inspected?

**A.** The patrol commander inspects the patrol, being careful that each man has the proper amount of ammunition; that none are sick, intoxicated, or foot-sore; that the horses are in good condition, well shod, and properly equipped and supplied. He also sees that the arms and accouterments of his men are so arranged as neither to rattle nor glisten in the sunlight.

*Conduct of Patrols.*

**Q.** How should the members of a patrol communicate with one another?

**A.** By signals, either those of the Regulations, or any other found suitable.

**Q.** Every patrol should have what general formation?

**A.** The patrol should have the general formation of main body, advance guard, rear guard, and flank-

ers. On nearing the enemy, the patrol should generally extend in line to facilitate observation. Figures 1 to 9 in the following diagram give typical formations of an infantry patrol, though in 1, 2, and 3 the commander would generally lead; few signals are then necessary, the men simply regulating their movements by his.

Q. What are the essential differences between a cavalry and an infantry patrol?

A. Owing to the greater mobility of cavalry, the distances and intervals separating the scouts from each other and from the main body of the patrol are greater than in infantry. In very open country the cavalry scouts may sometimes be as far as 1000 yards apart. Another essential difference in the conduct of infantry and cavalry patrols, depending also upon the superior mobility of the latter, is the detaching of scouts from strong cavalry patrols. These scouts are not merely detached after the manner of the flankers, but work quite independently, joining the main body of the patrol at fixed rendezvous, or maintaining connection with it by occasionally sending in messages to its commander. These detached scouts usually work in pairs, one man being in command, and may be sent as far as five or six miles from the main body of the patrol. Each scout should understand what he is to look for, and how and where he is to report.

Q. What is the only definite rule that can be laid down for the formation of a patrol?

A. The only definite rule that can be laid down is the following: *The patrol must always be so formed as to facilitate the gaining of information, and to insure, if possible, the escape of at least one man, if the patrol should be*

# **PATROLS.**

**Fig. 1.**



3 men

**Fig. 2.**



4 men

**Fig. 3.**



5 men

*Distances and intervals vary from 25 to 100 yards according to circumstances.*

**Fig. 4.**



6 men

**Fig. 5.**



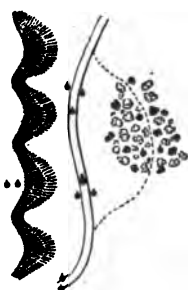
7 men

**Fig. 6.**



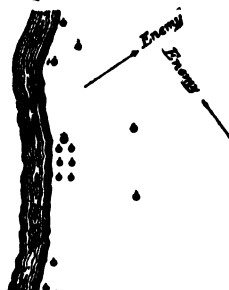
8 men

**Fig. 7.**



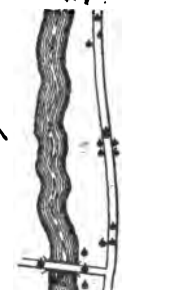
12 men

**Fig. 8.**



13 men

**Fig. 9.**



16 men, marching along road with passage on the flanks.

*cut off. Any disposition that complies with this rule is right.*

Q. What considerations influence the distances and intervals between the members of a patrol, and what are generally the minimum and maximum distances?

A. The distances and intervals depend upon circumstances. In the case of infantry patrols they are rarely less than twenty-five or more than one hundred yards. The men should be close enough to see or hear each other's signals, and to afford mutual support. On the other hand, they should not so crowd together that the patrol can see no more than a single man could.

Q. Of what should the point generally consist? how are the signals to and from the commander transmitted, and how is the patrol assembled?

A. The point should, when practicable, consist of two men, in order that one may scout vigilantly towards the enemy while the other watches for signals from the men on the right and left and from the commander. The signals from the other members of the patrol are generally transmitted to the commander through the point. To assemble the patrol, the commander signals to the point to halt, and moves up to it, followed by the rear guard man. The other men at once close in on the point, conforming their pace to that of the commander.

Q. How does the patrol move?

A. The patrol moves cautiously along hedges, walls, ditches, ravines, etc., seeking in every way to see without being seen. It halts frequently to listen, and to make careful observation of the ground.

Q. How should a patrol generally return?



A. It is advisable for a patrol to return by a different route from the one followed during the advance, if it be practicable to do so, as it thus extends its reconnaissance and lessens the danger of being cut off.

Q. What should the patrol do in regard to great roads?

A. Generally the patrol should avoid moving on great roads and entering villages and inhabited places. But this does not mean that observation of great roads is to be neglected. On the contrary, they are the very ones that should be most carefully watched; for they are the routes that must be followed by any bodies of the enemy whose movements are really worth reporting. The patrol, while moving across fields and along such objects as have been already mentioned, should endeavor to keep a constant watch on the great roads. Inhabited places should be carefully observed, but should not ordinarily be entered by a small patrol. At night, or in a fog or snow-storm, the patrol must of necessity move on the great roads, in order to avoid losing its way, unless it is moving over ground with which it is perfectly familiar.

Q. What is the general rule in regard to a patrol halting?

A. The patrol should not halt for long rests before its return, unless circumstances render it imperatively necessary to do so. In such case it should rest in concealment in some place which offers advantages for defense, and from which a retreat can be easily effected.

Q. If another patrol of the same army or any friendly force is met, what should be done?

A. The patrol commander should exchange information with it, and inform himself of its strength, its destination, and the name of its commander, in order that he may report the same on his return.

Q. What should be done if a hostile patrol is discovered?

A. If a small hostile patrol is discovered, it is generally better to remain in concealment than to attack; for the noise of combat might cause enough mischief to more than counter-balance all that could be gained by defeating the hostile patrol, even if prisoners were captured. If the patrol is discovered by the hostile patrol, and finds itself unable to escape without fighting, it should attack boldly, and endeavor to take prisoners. If the hostile patrol has penetrated so far as to make it probable that it has gained important information, an attempt should be made to ambuscade and capture it. If surprised, a patrol should fight resolutely, unless the enemy is in such force as to make resistance hopeless. In the latter case, or if defeated in any case, the patrol should disperse, each man making his way back to the rendezvous designated beforehand. It should then, after uniting, continue its reconnaissance, sending one man back to the command with a message. It should be an invariable rule not to quit the reconnaissance until some result has been obtained.

Q. What is the rule in regard to fighting?

A. Patrols habitually seek safety in concealment or flight, *fighting only when absolutely necessary*. The most skillful patrolling is where patrols accomplish their mission and return without discovery by the enemy.

Q. What should be done if the patrol falls into an ambushade, and what if a hostile sentinel or patrol is suddenly encountered in the dark?

A. If, notwithstanding its prudence, the patrol falls into an ambushade, it should boldly attack. If a sentinel or patrol of the enemy is suddenly encountered in the dark, no answer should be made to his challenge, but the patrol should remain halted and silent. The enemy may think himself mistaken and pay no further attention. If the challenge is repeated, the patrol should sneak away as quickly as possible, unless it has orders to capture prisoners, in which case a sudden rush upon the sentinel might enable the patrol to overpower him and carry him off before he could receive assistance. If some members of the patrol can speak the language of the sentinel, they may succeed in allaying his suspicions with a plausible answer to his challenge.

Q. What question should be asked of civilians coming from the direction of the enemy, or whose neighborhood has been visited by hostile troops?

A. Whenever the approach of people is signaled, the patrol remains concealed in observation. If they prove to be civilians coming from the direction of the enemy, they should be questioned carefully, as they may sometimes give valuable information. They should be asked whether they have seen any of the enemy's soldiers: where they were, what they were doing; whether they were infantry, cavalry, or artillery; whether they were regular troops or militia; what kind of uniforms they wore; whether the horses and men were in good condition, or seemed to be worn out and fatigued; how the troops of the enemy behaved; how the road leading to the enemy is situated,

and its condition; whether the enemy has scouting parties out; whether he seems to be vigilant; whether he has taken any guides from the village, etc.

Q. What should be avoided when questioning country people?

A. Questions formulating a statement to which the person questioned may answer "yes" or "no" should be avoided. The questions should be such as to draw out a narrative from the person interrogated.

Q. What precautions should be observed in questioning civilians?

A. It should always be borne in mind that the questions asked may be repeated to the enemy, and the questioner must, therefore, be careful so to frame them that they will not give a key to his own designs. When several persons are questioned, they should be examined separately.

Q. What should be done in regard to people going in the direction of the enemy?

A. They should be halted, and never allowed to proceed, unless they have undoubtedly genuine passes from proper authority.

Q. How should guides be selected and treated?

A. If it be necessary to take a guide from among the people of the country, he should be kindly treated, but warned that he will pay with his life the penalty of treachery. He must always be carefully guarded, and must not be discharged until there is no longer danger of his betraying the patrol. No one but the commander should communicate with the guides. Drovers, peddlers, livery-stable employees, and country doctors will generally be the best guides. If a man can be found who has served as a guide to the enemy, so much the better.

**Q.** What precautions are taken by the patrol with reference to concealment?

**A.** Whenever possible, the men composing the patrol should keep under cover.

**Q.** How are cross-roads reconnoitered?

**A.** When the patrol comes to a cross-road, two men should be sent along it on each flank until they come to the first turn, the patrol halting. If the men see nothing suspicious, they return, and the patrol pushes on. If anything suspicious is seen, one man rushes back quickly to the patrol, while the other remains in observation. If the patrol is very small, two men should be sent first to one side and then to the other, in preference to sending a single man in each direction.

**Q.** How is a height reconnoitered?

**A.** In reconnoitering a height, if the patrol is large enough to admit of detaching them, one or two men climb the slope on either flank, keeping in sight of the patrol if possible. In any case, one man moves cautiously up the hill, followed by the others in single file at such distance that each can keep his predecessor in view.

**Q.** How is a defile reconnoitered?

**A.** On approaching a defile, if time permits, the heights on either side should be reconnoitered by flankers before the patrol enters. If the heights are inaccessible, or time is urgent, the patrol pushes rapidly through, in single file, the distances between the men being the same as in ascending a hill. The same method should be adopted in reconnoitering a railroad cut or sunken road.

**Q.** How is a bridge or ford reconnoitered?

**A.** At a bridge or ford, the front of the patrol is contracted so as to bring all men to the passage. The

patrol then crosses rapidly, and takes up a proper formation. A bridge is first examined, to see that it is safe and has not been tampered with by the enemy. If there is danger that the enemy may be concealed on the opposite side, a part of the patrol takes a position where it can cover the remainder as it crosses.

Q. How are woods reconnoitered?

A. The patrol enters a wood in skirmishing order, the intervals being as great as may be consistent with mutual observation and support on the part of the members of the patrol. On arriving at the farther edge of the wood, the patrol should remain concealed and carefully look about before passing out to the open ground. When there is such a growth of underbrush as to make this method impracticable, a road through the wood must be reconnoitered as in the case of a defile, though not usually so rapidly. If in this case a cross-road is found in the wood, the patrol must be assembled and the lateral road reconnoitered before passing on.

Q. How is an inclosure reconnoitered?

A. In reconnoitering an inclosure (such as a garden, park, or cemetery), the leading patrollers first examine the exterior, to make sure that the enemy is not concealed behind one of the faces of the inclosure. They then proceed to examine the interior. Great care should be taken in reconnoitering and entering an inclosure, as an imprudent patrol might find it a veritable trap.

Q. How is a house reconnoitered?

A. When a house or farm-building is approached by a patrol, it is first carefully reconnoitered from a distance, and if nothing suspicious is seen, it is then approached by two men, the rest of the party remain-

ing concealed in observation. If the patrol is large enough to admit of it, four men approach the house, so as to examine the front and back entrances simultaneously. Only one man enters the door, the other remaining outside to give the alarm, should a party of the enemy be concealed in the house. The patrol should not remain in the vicinity of the house any longer than necessary, as information relative to its numbers and movements might be given to the enemy, if a hostile party should subsequently visit the place.

**Q.** How are villages reconnoitered?

**A.** If the village is seen to be in possession of the enemy, the patrol must be content with reconnoitering it from a distance. If the presence of the enemy is not apparent, the patrol should enter the village, being disposed in any way conforming to the general rule. A formation suitable in many cases would be in single file at proper distances for observation and support, each man being on the opposite side of the street from his predecessor. The patrol should push through the village as rapidly as possible; and when it has reached the opposite side, two of the party might be detached, if expedient, to reënter the village to seek further information, the rest of the patrol remaining in some position affording good observation and secure retreat.

If the patrol is strong enough, it should seize the postoffice, telegraph office, and railroad station, and secure all important papers that may be there. If the patrol is part of an advance guard, it should seize the mayor and postmaster of the place, and turn them over to the commander of the vanguard with the papers seized.

At night, a village must be even more cautiously approached by a small patrol than by day. The patrol

should glide through back alleys, across gardens, etc., rather than move along the main street. If there are no signs of the enemy, they should make inquiry. If no light is seen, and it seems imprudent to rouse any of the people, the patrol must watch and capture one of the inhabitants, and get from him such information as he may possess.

The best time for a patrol to approach a village is at early dawn, when it is light enough to see, but before the inhabitants are up.

Q. How are cities and large towns reconnoitered?

A. As a rule, cities and large towns should not be entered by a small patrol, but should be merely watched from the outside.

*Conduct of Patrols—Indications of the Enemy.*

Q. How is the reconnaissance of the enemy in position effected?

A. The patrol endeavors to ascertain the direction and extent of the line of observation, how its flanks are supported, the positions of the sentinels, their number, the number of supports, the place where the line may be penetrated with the least risk of discovery, the strength of the hostile patrols, and the routes taken by them. It is also of great importance to ascertain whether good roads extend laterally behind the enemy's supports, as such roads could be used by a force sent out to capture them. If the enemy's line of sentinels is penetrated, the patrol may, perhaps, approach near enough to the support to overhear the countersign and parole; but it must be certain that the advantage to be gained is worth the risk, as the patrol will be in great danger of capture. If a point can be found on the flank of the enemy's position from which a view of his dispositions in rear of the line of sentinels can be ob-



tained, the commander of the patrol endeavors to gain such point, and, concealing his patrol near at hand, makes careful observation. The best time for such observation is, at daybreak, and the selected point should be gained before dawn, so as to enable the patrol to observe the relieving of the outpost. The longer the patrol remains, the more it will see, but the greater will be its danger of being discovered. The patrol commander should have sufficient courage to remain long enough to gain valuable information, and sufficient prudence to withdraw in time to escape capture.

If any important movements are observed, such as the withdrawing of the sentinels, the changing of their positions, preparations for advance or retreat, etc., the patrol commander sends a man back at once with a report of what has been seen.

Q. How is the reconnaissance of the enemy on the march effected?

A. If the enemy is on the march, the patrol should conceal itself close to the hostile column, but far enough away to escape discovery by the enemy's flankers. Conspicuous places should be avoided, even if at some distance from the column, as they would probably be carefully searched. The best place is a ditch or wallow, which will conceal the patrol and not be visible even at a short distance. The patrol carefully observes the progress of the column, noting its breadth of front, its rate of march, and the time it takes to pass a given point.

Q. How can the strength of a column be estimated?

A. The strength of a body of troops may be estimated from the length of time it takes to pass a given point. Assuming that infantry in column of

fours occupies half a yard per man, cavalry 1 yard per trooper, and artillery in single column 20 yards per gun or caisson, a given point would be passed in one minute by about—

175. infantry;  
110 cavalry, at walk;  
200 cavalry, at trot;  
5 guns or caissons.

For troops in column of twos, take one-half of the above estimates.

Q. What indications are furnished by boats and bridges in the vicinity of the enemy?

A. If boats in great number are seen assembled on the bank of a stream, it is an indication of preparation to cross. If they are found burned, it is an indication of retreat. If important bridges are found broken, it is a sign of a long retreat. If at some distance above the point where we are preparing to throw a bridge large boats heavily laden with stone are found, it is an evidence of the enemy's intention to destroy the bridge and oppose the crossing.

Q. What indications are furnished by the flames and smoke of the enemy's camp-fires?

A. If at night the flames of the enemy's camp-fires disappear and reappear, something is moving between the observer and the fires. If smoke as well as flame is visible, the fires are very near. If the fires are very numerous and lighted successively, and if soon after being lighted they go out, it is probable that the enemy is preparing a retreat and trying to deceive us. If the fires burn very brightly and clearly at a late hour, the enemy has probably gone, and has left a detachment to keep the fires burning. If, at an unusual time, much smoke is seen ascending from the enemy's camp,

it is probable that he is engaged in cooking preparatory to moving off.

Q. What indications may be noted of the arrival and departure of troops?

A. The rumbling of vehicles, cracking of whips, neighing of horses, braying of mules, and barking of dogs often indicate the arrival or departure of troops. If the noise remains in the same place, and new fires are lighted, it is probable that reinforcements have arrived. If the noise grows more indistinct, troops are probably withdrawing. If, added to this, the fires appear to be dying out, and the enemy seems to redouble the vigilance of his outposts, the indications of retreat are very strong.

Q. What characteristic noises are made by troops on the march, and at what distances can the various arms be heard?

A. The noise made by a strong column on the march is distinct and continuous; that of a small body, feeble and interrupted. The distance at which the noise of marching can be heard depends upon the nature of the ground marched over, the direction of the wind, and the presence or absence of other sounds. On a calm night, a company of infantry, marching at route step on a hard road, can be heard at a distance of 500 or 600 yards; a troop of cavalry at a walk, 600 or 700 yards; a troop of cavalry at a trot or gallop, artillery, and heavy wagons, 900 or 1000 yards.

Q. What indications are afforded by the dust raised by a marching column?

A. When infantry is marching, the dust is low and thick. With cavalry, the dust is higher; and as this arm moves rapidly, the upper part of the cloud is thinner and disappears more quickly than in the case

of infantry. The clouds of dust raised by artillery and wagons are unequal in height and disconnected. Hence, by noting the length of a line of dust and the intervals in it, the strength and composition of the column may be estimated. The effect of the wind in dissipating the dust must, however, be taken into consideration.

Q. What indications are furnished by the reflection from the weapons of marching troops?

A. If the reflection is very brilliant, it is probable that the troops are marching towards the observer; otherwise, it is presumable that they are marching in the other direction.

Q. At what distance can various objects be seen, on a clear day, by a man with good vision?

A. At a distance of 9 to 12 miles, church spires and towers.

At a distance of 5 to 7 miles, windmills.

At a distance of 2 to 2½ miles, chimneys of light color.

At a distance of 2000 yards, trunks of large trees.

At a distance of 1000 yards, single posts.

At 500 yards the panes of glass may be distinguished in a window.

Troops are visible at 2000 yards, at which distance a mounted man looks like a mere speck; at 1200 yards infantry can be distinguished from cavalry; at 1000 yards a line of men looks like a broad belt; at 600 yards the files of a squad can be counted, and at 400 yards the movements of the arms and legs can be plainly seen.

Q. What are some of the conditions which cause an object to look farther or nearer than it really is?

A. The larger, brighter, or better lighted an ob-

ject is, the nearer it seems. An object seems nearer when it has a dark background than when it has a light one, and closer to the observer when the air is clear than when it is raining, snowing, foggy, or the atmosphere is filled with smoke. An object looks farther off when the observer is facing the sun than when he has his back to it. A smooth expanse of snow, grain fields, or water makes distances seem shorter than they really are.

Q. What information may be gained from the trail of the enemy?

A. If the ground is evenly trodden, the column was composed of infantry alone. If there are many prints of horseshoes, the column also contained cavalry. If the wheel tracks are deep and wide, artillery was in the column. If the trail is fresh, the column has recently passed. If the trail is narrow, the troops felt secure, as they were marching in column of route; if broad, they expected an action, as they were marching in column of platoons or companies, ready to deploy. If the fields on each side of the road are cut up with many tracks, the cavalry marched on the flanks of the column, and the enemy was pushing on with his troops well in hand for action. A retreating army makes a broad trail across fields, especially before the rear guard is formed and the retreat is regularly organized.

Q. What indications are furnished by an abandoned camp or bivouac?

A. They are found mainly in the remains of campfires. These will show, by their degree of freshness, whether much or little time has elapsed since the enemy quitted the place, and the quantity of cinders will give an indication of the length of time he occupied it.

They will also furnish a means of estimating his force approximately, ten men being allowed to each fire. Other valuable indications in regard to the length of time the position was occupied and the time when it was abandoned may be found in the evidences of care or haste in the construction of huts or shelters, and in the freshness of straw, grain, dung, or the entrails of slaughtered animals. Abandoned clothing, equipments, or harness will give a clue to the arms and regiments composing a retreating force. Dead horses lying about, broken weapons, discarded knapsacks, abandoned and broken-down wagons, etc., are indications of its fatigue and demoralization. Bloody bandages lying about, and many fresh graves, are evidences that the enemy is heavily burdened with wounded or sick.

Q. What inferences may be drawn from the manner and bearing of the inhabitants in a hostile country?

A. If the inhabitants are gloomy and anxious, it is an indication of a want of confidence in their cause, or that their troops are distant. If they are excited and insolent, it is an indication that their army is strong and near, and that they anticipate success. If they are friendly and pleasant in their demeanor, it is probable that the war is not popular, and that the Government lacks cordial support.

Q. What is the most favorable moment for questioning prisoners, and why?

A. When they have just been captured. They are then agitated and have not sufficient self-control to deceive, and their answers at the place of capture may to a certain extent be verified. Such is not the case after the lapse of some time and in another place.

Q. By whom are the prisoners questioned?

A. By one of the officers of the detachment which captures them. Their replies are written down and transmitted with the prisoners to the Information Division, where they are questioned more at length.

Q. What is the relative value of different grades of prisoners?

A. It is more desirable to capture an officer than an enlisted man; an officer of high rank rather than a subaltern; a staff officer rather than a line officer. In brief, the object should be to capture those who are likely to possess the most extended information.

Q. If enlisted men are captured, what should they be questioned about?

A. They should be questioned in regard to their regiments, brigades, and divisions; the length of time they have been in the position; whether their rations are satisfactory; whether certain commanders are popular and have the confidence of their men; whether there are many men on sick report; what news has lately been received in camp, and what the rumors are—in brief, all questions calculated to elicit information in regard to the enemy's position, movements, and *morale*. If tact be exercised in questioning, much information may be gained; for the prisoner will probably consider the questions as prompted merely by natural curiosity.

Q. When the object is the destruction of roads, railroads, or telegraphs, or the tapping of a telegraph, how should a patrol act?

A. When the object is the destruction of roads, railroads, or telegraphs, a patrol should generally be a large one; but in some cases a small patrol may answer the purpose better, as it can move to its des-

mination more secretly, and the use of high explosives gives it a great destructive power. In any case, the patrol should endeavor to reach its objective unseen, and part should be on the alert watching the enemy while the rest of the men are engaged in the work of destruction.

A patrol may be sent out to gain information by "tapping" a telegraph line. In this case, a telegraph operator, using a small pocket instrument, taps the line and learns the messages passing over it. The rest of the men, carefully concealed, look out for the enemy.

*Conduct of Patrols—Messages and Reports.*

Q. When should messages be sent in, and what should be reported?

A. Messages should be sent in whenever anything of importance is seen, or anything happens which should be known to the officer who sent out the patrol.

Q. How should a verbal message be sent, and when are such messages better than written ones?

A. If a verbal message is sent in, it should be intrusted to an intelligent man, and he should be required to repeat it before starting, so as to be sure that he understands it. The man who carries the message should, if possible, himself deliver it to the officer for whom it is intended. If the country is dangerous and carefully watched by the enemy, the same message should be sent in by several men, each taking a different route. In this case a verbal message is better than a written one, as the enemy can not get possession of it by capturing the bearer, and the message of each man will be a check upon the accuracy of the others.



A. **Scrupulous accuracy as to facts, simplicity, clearness of diction, legibility of handwriting, and correct spelling of proper names.** Surmises should never be given as to facts, and the person making the message should carefully separate what he himself knows from what has been told him by others. Brevity is desirable, but not at the price of obscurity.

[illegible]

The heading "From" is filled in with the *name* of the detachment sending the information; as "Officer's Patrol, 7th Cav." Messages sent on the same day from the same source to the same person are numbered consecutively. The address is written briefly; thus, "Commanding Officer, Outpost, 1st Brigade." In the signature the writer's surname only and rank are given.

This blank is 4½ by 8 inches, including the margin on the left for binding. The back is ruled in squares and provided with scales for use in making simple sketches explanatory of the message. It is issued by the Signal Corps in blocks of 40 with duplicating sheets. The regulation envelope is 3 by 5½ inches and is printed as follows:

U. S. ARMY FIELD MESSAGE	
TO.....	No..... (For Signal operators only)
When sent.....	No.....
Rate of speed.....	
Name of Messenger.....	
When and by whom rec'd .....	
This Envelope Will be Returned to Bearer.	

**Q.** What is the object of a "sketch"?

**A.** Sketches are useful to supplement messages, and to elucidate reports of campaigns and battles.

**Q.** What should a sketch show?

**A.** Any information that may be useful in planning operations, such as roads, hills, ravines, woods, embankments, etc.; but, as they are generally made rapidly and often on horseback, unnecessary conventional signs are omitted.

**Q.** What is a report?

**A.** A report is a more or less formal account of some enterprise, undertaking, or event, such as a march, reconnaissance, battle, etc. This term is sometimes incorrectly used for "message." A report is usually drawn up at comparative leisure, is often the

supplement and expansion of short messages, and thus possesses the value of greater detail.

Q. How is information in the field transmitted?

A. Information is transmitted as follows:

1. By wire (telegraph, buzzer, telephone);
2. By visual signaling (flag, helio, night lamp);
3. By wireless telegraph;
4. By messenger (foot, mounted, cycle, motor car).

Information over considerable distances is usually transmitted by wire or wireless telegraph. For short distances,\* and when other means are not available, information is carried by messenger. When messages are sent by wire or wireless telegraph, they are always handed the operator in writing. The telephone is not so accurate as the telegraph, and when used, the parties concerned do the talking if practicable. All available means are utilized to facilitate the transmission of information, and is the duty of all officers to assist in the transmission of orders and messages.

Q. How are messages carried by messenger usually marked?

A. Messages carried by messenger are usually inclosed in envelopes properly addressed. The envelope, when not marked "Confidential," is left unsealed, so that commanders along the line of march may read the contents. Upon the envelope is written the name of the messenger, his time of departure, and rate of speed. The latter is indicated as follows: *ordi-*

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\*For instance, at *urgent* speed and for distances up to about half a mile, a mounted messenger can deliver a message of 10 words in less time than the same can be delivered by wire.

nary, rapid, or urgent. Ordinary means about five miles an hour for a mounted man; rapid, about seven or eight miles an hour; and urgent, the highest speed consistent with certainty of arrival at destination. The recipient notes the time of receipt upon the envelope and returns the latter to bearer.

Q. When are messages sent in cipher?

A. When there is danger of their falling into the hands of the enemy.

Q. When the usual means of communication cannot be established or fail to work, how is military information transmitted?

A. By relays of mounted men.

#### *Reconnaissance in Force.*

Q. What is a reconnaissance in force?

A. A threatened or actual attack made upon the enemy with a view of locating his lines and of determining his strength. It is resorted to only when this information can be obtained in no other way, and is usually a prelude to a general attack.

Q. What are the advantages and disadvantages of making a reconnaissance in force in the evening, and what in the morning?

A. If it be made late in the afternoon, the troops may be withdrawn under cover of the darkness; but if made at that hour, the enemy will probably suspect the true nature of the operation. If made in the morning, the enemy will doubtless believe it to be a serious attack; but it may very easily precipitate a battle.

Q. To what three serious objections is a reconnaissance in force open?

A. 1. It often results in committing the troops

so completely to action as to bring on a battle through the necessity of bringing up other troops to their assistance.

2. The withdrawal of the troops in pursuance to the general plan of the reconnaissance may often present the appearance of defeat, and thus injure the morale of the army.

3. It is always a costly means of gaining information.

*Reconnaissance by Balloon or Flying Machine.*

Q. How are balloons classified?

A. As *free*, *dirigible*, and *captive*.

Q. Which of these may be employed in reconnaissance?

A. The dirigible balloon or flying machine may be of great value to a commander in obtaining accurate and prompt information of the enemy. Captive balloons may also be of advantage in furnishing information of the movements of the enemy near the front or flanks of an army.

Q. How is communication maintained with a captive balloon?

A. Generally by wire.

## CHAPTER IV.

## ORDERS.

Q. What is a military order?

A. A military order is the expression of the will of a chief conveyed to subordinates.

Q. What are the requirements of a good order?

A. A good order should be clear and unambiguous, conveying what the chief intends, nothing more or less. The art of giving proper instructions and orders to troops is one of the most important features in the exercise of command.

Q. Give the classes of orders and define each.

A. Orders are classified as *routine orders* and *field orders*.

Routine orders are those used in the ordinary administration of military affairs, and are called *general orders*, *special orders*, *circulars*, and *orders*, according to circumstances.

Field orders are those dealing with *tactical* and *strategical operations* incident to a state of war.

Q. What are letters of instruction?

A. Orders in the form of letters issued by the supreme authority at the beginning of operations, and from time to time thereafter, and regulating movements over large areas and for considerable periods of time.

Q. When are field orders issued?

A. When it becomes necessary to prescribe tactical or strategical operations. For example: orders

for a march or for the formation of a camp or bivouac; orders for advance guards, rear guards, outposts, etc. Orders issued for the ordinary administration of military affairs in the field are routine orders.

Q. Do field orders ever contain administrative details?

A. Field orders do not, ordinarily, include administrative details. Such matters are usually better covered by verbal instructions or routine orders. Circumstances may arise, however, where it would be advantageous to include in field orders instructions relating to rations, ammunition, forage, etc.

Q. How are field orders issued?

A. Field orders are issued *verbally, by dictation, or in writing*. When commands are scattered or are as large as a division, *written orders* are the rule; they are addressed to the subordinates charged with their execution. Commanders of the smaller units usually issue verbal or dictated orders, the subordinate commanders or their adjutants being assembled at stated hours or pursuant to special call. When not communicated by the commander in person, verbal orders are carried by staff officers or messengers. Important verbal orders are recorded as soon as practicable after issue.

Q. What is the rule in regard to sending verbal orders by messengers?

A. As there is always a possibility of controversy as to their wording, verbal orders are sent by messengers in cases of necessity only, and when so sent, rarely contain more than one definite mandate. For example: "The regiment will halt three hours at —." More latitude is allowed in sending verbal orders by officers.

## FIELD ORDERS.

*Composition.*

Q. What are the steps involved in the drafting of field orders?

A. To frame a suitable field order, the commander must take an *estimate of the situation*, culminating in a *decision* upon a definite plan of action. He must then actually *draft* or *word* the orders which will carry his decision into effect.

Q. What is meant by an *estimate of the situation*?

A. A careful study by the commander of all the conditions that may influence him in deciding upon a plan of action.

Q. What questions are generally considered by a commander when estimating a situation?

A. He considers (a) his *mission* as set forth in the orders or instructions under which he is acting, or as deduced by him from his knowledge of the situation; (b) all available information of the *enemy* (strength, position, probable intentions, etc.); (c) conditions affecting his own command (strength, position, supporting troops, etc.); and (d) the terrain in so far as it affects the particular military situation. He then decides upon the plan of action that will best accomplish his mission.

The commander's *plan of action* will be to advance, attack, retreat, take up a defensive position, or a position in readiness, etc., and the *order* is issued accordingly.

Q. What is the rule in regard to the integrity of tactical units?

A. In framing orders the integrity of tactical units is preserved whenever possible.



Q. Give some rules for securing clearness in field orders.

A. Field orders must be *clear* and *definite*. Expressions depending on the viewpoint of the observer, such as *right*, *left*, *in front of*, *behind*, *on this side*, *beyond*, etc., are avoided, reference being made to points of the compass instead. The terms *right* and *left*, however, may be applied to individuals or bodies of men, or to the banks of a stream; in the latter case the observer is supposed to be facing down stream. The terms *right flank* and *left flank* are fixed designations. They apply primarily to the right and left of a command when facing the enemy and do not change when the command is retreating. The *head* of a column is its leading element, no matter in what direction the column is facing; the other extremity is the *tail*.

To minimize the possibility of error, geographical names are written or printed in Roman capitals; when the spelling does not conform to the pronunciation, the latter is shown phonetically in parentheses, thus: Bicester, (Bister), Gila (Hee'-la).

When two or more places or features on the map have the same name, they are distinguished by reference to other points.

A road is designated by connecting two or more names or places on the road with dashes, thus: Leavenworth—Lowemont—Atchison road.

As a rule, a positive form of expression is used. Such an order as, "The field train will not accompany the command," is defective, because the gist of the order depends upon the single word "not."

Written orders should be so distinct as to be legible even in bad light.

Q. What is the general rule as to *brevity* of field orders?

A. Field orders are *brief*; short sentences are easily understood; conjectures, expectations, reasons for measures adopted, and detailed instructions for a variety of *possible* events, do not inspire confidence, and should be avoided.

Q. What circumstances may require a departure from this rule?

A. The skill, judgment, and discretion of the person who is to execute the order. If a subordinate is trained in his profession and possesses good judgment, he should be relied upon to carry out the details of orders received by him. On the other hand, lack of training or of good judgment on the part of a subordinate may compel the commander to specify in detail the manner in which he desires an order to be carried out.

Q. What is the rule as to details of time and place?

A. Details of time and place are carefully stated. Subordinate commanders and staff officers regulate their watches by the time kept at headquarters.

#### *Form of Field Orders.*

Q. What is the object of requiring field orders to be drafted in accordance with a certain general form?

A. To enable the will of the commander to be *quickly understood*, and to secure *prompt coöperation* among his subordinates. The form divides an order into sections or parts, and assigns to each a particular class of information.

Q. Name the parts of a field order.

A. The heading;

The distribution of troops (in certain orders);

The body;  
The ending.

Q. What does the *heading* contain?

A. The heading contains the *title* or *name* of the issuing officer's command, the place, date, and hour of issue, and the number of the order.

Q. What is the office of the *distribution of troops*?

A. The distribution of troops shows the tactical components into which a command is divided (advance guard, main body, etc.), and the troops assigned to each. It is generally used in march orders and in the first field order applying to a command newly created or organized. In other cases it may be more convenient to name the troops in the body of the order, where their duties are prescribed.

Q. When used, where is the "distribution of troops" placed?

A. When a "distribution" is used, it is headed "Troops," and in written or printed orders is placed on the left of the *body*, occupying about one-third of the page. The tactical components are marked with lettered sub-heads, (a), (b), etc., the troops listed under each performing the task prescribed in the similarly marked paragraph of the body of the order.

When orders are dictated or sent by wire or signals, the distribution of troops (if used) is given immediately after *paragraph 2*, without number.

Q. What does the *body* of a field order contain, and how is it arranged?

A. The body contains information and instructions for the command, and is arranged in numbered paragraphs as follows:

*Paragraph 1* contains such information of the en-

emy and of our supporting troops as it is desirable that subordinates should know.

*Paragraph 2* contains the general plan of the commander, or so much thereof as will insure coöperation of all parts of the command.

*Paragraph 3* contains the detailed *tactical* dispositions adopted by the commander to carry out the plan outlined in paragraph 2, including the tasks assigned to each of the several *combatant* fractions of the command. These tasks are given under lettered sub-heads (a), (b), etc., the leading fraction, or the one having the most important duty to perform, being generally considered first. For instance: in an attack order it is customary to consider the artillery first; in a march order, troops are considered according to their position in the column.

Instructions applicable to all of these fractions may be embodied in a sub-paragraph, lettered (x), at the end of *paragraph 3*.

*Paragraph 4* contains instructions for the sanitary troops and the trains.

*Paragraph 5* shows where the commander can be found or messages may be sent. In orders of subordinate commanders, this paragraph also gives the location of "lines of information," if any have been established.

If additional paragraphs are necessary, they are incorporated, properly numbered, after *paragraph 4*. Sometimes it is unnecessary to include instructions for the sanitary troops and the trains; but, whatever the number of paragraphs, the last always shows where the commander can be found, etc.

Q. What is meant by *combatant* fractions of a command?

A. Those troops that actually take part in the fighting—the infantry, cavalry, artillery, engineers, and signal troops.

Q. Are field orders always issued in the form described above?

A. They are not. In active operations, especially during engagements, numerous orders are issued—either verbally or in the form of notes, brief dispatches, messages, orders for assembly, etc.—which will not contain all the requirements of a formal written or printed field order.

Q. What is the rule in such cases?

A. Whenever detailed instructions for *operations* are given, whether verbally, in writing, or otherwise, the sequence prescribed for the body of a formal field order is preserved.

Q. What does the *ending* of a field order contain?

A. The ending contains the authentication of the order and a statement of how it is communicated to the command.

Q. How are *titles* or names of military organizations expressed?

A. Generally by abbreviations, as follows: :

Complete organizations:

Co. A, 1st Inf.

Cos. A & B, 1st Inf.

1st Bn. 2d Inf.

3d Inf.

Btry. A, 1st F. A.

Tr. B, 1st Cav.

2d Sq. 5th Cav.

Co. E, Engrs.

Co. A, Sig. Corps.

Amb. Co. No. 1.

1st F. Hosp.

Fractional organizations:

Co. A, 1st Inf. (less 1 plat.).

1 plat. Co. A, 1st Inf.; 1st Plat. Co. A, 1st Inf.

18th Inf. (less 6 cos.); or Hq. & 6 cos. 18th Inf.

3d Brig. (less 2 regs.).

1st Plat. Btry. F, 6th F. A.

5th Sec. Btry. B, 3d F. A.

1 sq. Tr. B, 3d Cav.; 1st Sq. Tr. B, 3d Cav.

Tr. H, 8th Cav. (less 3 plats.).

1 sec. Co. B, Engrs.

2 sqs. Co. A, Sig. Corps.

Det. Amb. Co. No. 1.

Det. 2d F. Hosp.

Det. 1st Div.

Outpost, 1st Bn. 6th Inf.

Advance Guard, 1st Sq. 5th Cav.

In the above titles "Det. 1st Div." means that the command is composed of troops from the 1st Division; "Advance Guard, 1st Sq. 5th Cav.," means that the command is the advance guard of the 1st Squadron, 5th Cavalry, etc.

Q. What is the advantage of indicating a fractional organization by using the word *less*, as in "3d Brig. (less 2 regs.)"?

A. It indicates where the headquarters or commander may be found.

Q. How are titles sometimes created?

A. By the order creating a command, thus: "The 1st Battalion will constitute the *advance guard*"; or it may be evolved from the nature of the operations,

thus: "China Relief Expedition"; "Army of Cuban Pacification."

Q. How are orders identified?

A. By the title with place, date, and number of the order.

Q. What is a *detachment*?

A. A detachment is a body of troops separated from a higher command and intrusted with a special mission.

When a fraction of an organization cannot be designated by naming one or more of the sub-divisions, it receives the generic title of "detachment."

Q. How are dates in the heading of a field order expressed?

A. Dates in the heading are abbreviated thus: 4 Feb. 08, 2-45 p. m.

Q. What abbreviations are used in the body of a field order?

A. No abbreviations are used in the body of the order except a. m. and p. m. for morning and afternoon, the authorized abbreviations for tactical organizations, and those customary in designating rank. In naming a night, both days should be mentioned, thus: night 4-5 Feb. 08. To designate "noon" and "midnight" these words are written.

Q. Before issuing a field order, what should a commander always do?

A. Test the order to see that the entire command is accounted for.

The following forms are given for the convenience of students who desire to extend their study of the important subject of field orders:

*For an Advance.\**

## Field Orders

No. 3

*Troops*

## (a) Independent Cavalry:

Col. A.

1st & 2d Sqs. 1st Cav.  
(less 1 troop).

## (b) Advance Guard:

Col. B.

1st Inf.

1 troop 1st Cav.

Btry. B, 5th F. A.

Det. Co. A, Engrs.

Det. Amb. Co. No. 1.

(c) Main Body, in order  
of march:

1st Bn. 2d Inf..

1st Bn. 5th F. A. (less  
1 btry.).1st Brig.† (less 1st  
Inf. & 1st Bn. 2d  
Inf.).

4th Inf.

Co. A. Engrs. (less  
det.).Amb. Co. No. 1 (less  
det.).

1st F. Hosp.

## (d) Signal Troops:

Lieut. D.

1 plat. Co. A.

4. The field train, escorted by one company 4th Inf., will follow the main body as far as FRENCHMAN.

5. The detachment commander will be with the main body until 7 a. m., and thereafter with the advance guard.

By order of Brig.-Gen. F:

*Lt.-Col. 1st Inf.,**Act. Chief of Staff.*

Copies to Colonels A and B, commanders of arty. and engrs., and to staff; to division commander, by wire.

\*See map of Fort Leavenworth, Kansas, and vicinity.

†Consisting of the 1st, 2d, and 3d Infantries.



## MARCH TABLE.

In movements of large forces on several roads, it is sometimes desirable to prescribe the daily marches of the various columns for two or more days. In such cases the order may often be simplified by appending or incorporating a march table, usually in the following form, each column providing its own security:

*March Table.*

\_\_\_\_ Army, from \_\_\_\_ (date) \_\_\_\_ to \_\_\_\_ (date) \_\_\_\_

Date.	____ Division.	____ Division.	Army Hq. ____
	[Location of main body or advance guard at end of each day's march, and route when necessary.]	[Location of main body or advance guard at end of each day's march, and route when necessary.]	[Location at end of each day's march.]

*For the Advance Guard.*

Field Orders\*

No. 1.

Advance Guard, Det. 1st Div.,

Leavenworth, Kansas,

10 Aug. 08, 5-30 A. M.

*Troops.*

- (a) Advance Cavalry:  
Captain B\_\_\_\_.  
Tr. A, 1st Cav. (less  
1 squad).

1. A Red force of all arms is reported to have camped near ATCHISON last night. Its cavalry patrols were seen near KICKAPOO yesterday.

Our main body will follow the advance guard at one-half mile.

- (b) Support:  
Major C\_\_\_\_.  
1st Bn. 1st Inf.

2. This advance guard will march on KICKAPOO.

3. (a) The advance cavalry

\* This order is issued pursuant to the foregoing "march order," and assumes that the troops designated for the advance guard have been notified when and where to assemble.

1 squad Tr. A, 1st  
Cav.\*  
Det. Co. A, Engrs.

will leave camp at once and march via ATCHISON CROSS to KICKAPOO. SHERIDAN'S DRIVE and the country west of the line of march for at least three miles will be carefully observed.

(c) Reserve, in order of  
march:  
Hq. & 2d Bn. 1st Inf.  
Btry. B, 5th F. A.  
3d Bn. 1st Inf.  
Det. Amb. Co. No. 1.

(b) The point of the support will start at 5-45 A. M., and march by the ATCHISON CROSS—FRENCHMAN—KICKAPOO road.

(c) The reserve will follow the support at 800 yards.

4. The field train will assemble near 70 at 7 A. M. under Captain X, Quartermaster, 1st Inf., and join the field train of the main body as that train passes.

5. I shall be at the head of the reserve.

B,  
Colonel, Commanding.

Verbally, to assembled troop, battalion, and battery commanders, and staff; copy to detachment commander by Lieut. N.

*A Halt for the Night—Camp with Outpost.*

[Title.]

[Place.]

Field Orders

No. —.

[Date and hour.]

1. [Information of enemy and of our supporting troops, including independent cavalry.]

2. [Plan of commander—to encamp or bivouac.]

3. (a) [Designation of commander and troops of outpost, general line to be held, special reconnaissance, connection with other outposts, if any.]

(b) [Instructions for troops not detailed for outpost duty—location of camp, designation of camp commander,† observation of flanks and rear when necessary, lines of information, conduct in case of attack.]

4. [Instructions for field train—generally to join troops, though, if near enemy, field train of outpost troops may be held in rear.]

[Instructions for sanitary troops, ammunition, supply and pack trains, when necessary.]

5. [Place of commander or where messages may be sent.]

[Authentication.]

[How and to whom issued.]

\* If this duty can be performed by mounted infantry scouts, cavalry is not detailed.

† Omitted when the chief exercises immediate command of the camp.

*For Outposts.*

## Field Orders.

No. —.

[Title.]

[Place.]

[Date and hour.]

*Troops.*

## (a) Advance Cavalry:

[Commander.]

[Troops.]

## (b) Support:\*

No. 1. [Commander.]

[Troops.]

No. 2. [Commander.]

[Troops.]

No. 3. [Commander.]

[Troops.]

## (c) Detached Post:

[Commander.]

[Troops.]

## (d) Reserve:

[Commander.]

[Troops.]

1. [Information of enemy and of our supporting troops.]

2. [Plan of commander—to establish outpost, approximate line of resistance.]

3. (a) [Instructions for advance cavalry—contact with enemy, roads or country to be specially watched, special mission.]

(b) [Instructions for supports—positions they are to occupy, and sections of line of resistance which they are to hold, entrenching, etc.]

(c) [Instructions for detached post—position to be occupied, duties, amount of resistance.]

(d) [Instructions for reserve—location, observation of flanks, conduct in case of attack, duties of special troops.]

4. [Instructions for field train if it has accompanied the outpost.]

5. [Place of commander or where messages may be sent, location of lines of information.]

[Authentication.]

[How and to whom issued.]†

It is sometimes necessary to issue two outpost orders; the first, as above, containing general instructions; the second, issued after an inspection of the line, and containing more definite instructions or involving changes.

\* Numbered from the right.

† For small outposts it may be more convenient to write this order without a marginal distribution of troops.

*For Positions in Readiness.*

Field Orders	[Title.]
No. —.	[Place.]
	[Date and hour.]
1. [Information of enemy and of our supporting troops.]	
2. [Plan of commander—to take up a position in readiness at or near —.]	
3. (a) [Instructions for cavalry—to reconnoiter in direction of enemy, special mission.]	
(b) [Instructions for artillery—position or place of assembly.]	
(c) [Instructions for infantry—position or place of assembly, points to be especially held, reconnaissance.]	
(d) [Instructions for engineers—position or place of assembly.]	
(e) [Instructions for signal troops—lines of information.]	
4. [Instructions for field trains—sanitary troops, ammunition, supply and pack trains—generally to halt at designated localities in rear, ready to move in any direction.]	
5. [Place of commander or where messages may be sent.]	[Authentication.]
[How and to whom issued.]	

*For Defensive Positions.*

Field Orders	[Title.]
No. —.	[Place.]
	[Date and hour.]
1. [Information of enemy and of our supporting troops.]	
2. [Plan of commander—to take up a defensive position at or along —, for the purpose of —.]	
3. (a) [Instructions for artillery—position, target, intrenching, etc.]	
(b) [Instructions for fighting line—division of front into sections and assignment of troops thereto, intrenching, etc.]	
(c) [Instructions for reserve—troops and position.]	
(d) [Instructions for cavalry—usually to cover with its main force the more exposed flank, a detachment being sent to patrol the other; reconnaissance.]	
(e) [Instructions for engineers—defensive work, clearing field of fire, preparation of obstacles, opening roads, etc.]	
(f) [Instructions for signal troops—to establish lines of information.]	
4. [Instructions for field train—generally to halt at a designated place.]	
[Instructions for sanitary troops—location of field hospitals and dressing stations.]	

[Instructions for ammunition train—generally to take station at a convenient point in rear of the position.]

[Instructions for supply train—generally to halt some distance in rear. The pack train may be ordered up to facilitate the ammunition supply.]

5. [Place of commander or where messages may be sent.]  
[Authentication.]

[How and to whom issued.]

*For an Attack.*

Field Orders

No. —.

[Title.]

[Place.]

[Date and hour.]

1. [Information of enemy and of our supporting troops.]
2. [Plan of commander—indicating the general plan of attack, usually to envelop a flank.]
3. (a) [Instructions for artillery—position, first target, generally hostile artillery.]  
(b) [Instructions for secondary attack\*—commander, troops, direction, and objective.]  
(c) [Instructions for main attack—commander, troops, direction, and objective.]  
(d) [Instructions for reserve—commander, troops, position.]  
(e) [Instructions for cavalry—generally to operate on one or both flanks, or to execute some special mission.]  
(f) [Instructions for engineers—any special mission.]  
(g) [Instructions for signal troops—to establish lines of information between the commander and the main and secondary attacks, artillery, reserves, etc.]
4. [Instructions for field train—generally to halt at a designated place.]  
[Instructions for sanitary troops—location of field hospitals and dressing stations, when practicable.]  
[Instructions for ammunition train—generally to take station at a convenient point in rear.]  
[Instructions for supply train—generally to halt some distance in rear. The pack train may be ordered up to facilitate the ammunition supply.]

5. [Place of commander or where messages may be sent.]  
[Authentication.]

[How and to whom issued.]

\* The term *secondary attack* as used in this form is for convenience only; it is never used in actual orders, as the vigor of an attack might be lessened if the troops knew it was "secondary" only.

NOTE.—In war it is not always possible to issue a complete attack order like the above, disposing of an entire command. In unexpected encounters, for instance, orders must be given as the situation develops.

*For a Retreat.*

Field Orders No. —.	[Title.] [Place.] [Date and hour.]
<i>Troops.</i>	1. [Information of enemy and of our supporting troops.]
(a) Leading Troops: [Commander.] [Troops.]	2. [Plan of commander—to retire in direction of —.]
(b) Main Body—in order of march: [Troops.]	3. (a) [Instructions for leading troops—place and time of departure, route, special mission.] (b) [Instructions for main body—place and time of departure, route.]
(c) Rear Guard: [Commander.] [Troops.]	(c) [Instructions for rear guard—distance from the main body, or place and time of departure, special mission.]
(d) Right (left) Flank Guard: [Commander.] [Troops.]	(d) [Instructions for flank guard—place and time of departure, special mission.]
(e) Signal Troops: [Commander.] [Troops.]	(e) [Instructions for signal troops—lines of information.] (x) [Instructions for out-post—when relieved, subsequent duties—usually forming the rear guard.]
5. [Place of commander or where messages may be sent.] [How and to whom issued.]	4. [Instructions for field train, sanitary troops, ammunition, supply and pack trains—place and time of departure, route, escort; these trains are generally some distance ahead of the column.] [Authentication.]

*For Rear Guards.*

Field Orders No. —.	[Title.] [Place.] [Date and hour.]
<i>Troops.</i>	1. [Information of enemy and of our supporting troops.]
(a) Reserve—in order of march:	2. [Plan of commander—mission of rear guard.]

- [Troops.]
- (b) Support:  
[Commander.]  
[Troops.]
- (c) Rear Cavalry:  
[Commander.]  
[Troops.]
- (d) Right (left) Flank  
Guard:  
[Commander.]  
[Troops.]
3. (a) [Instructions for reserve  
—place and time of departure, or  
approximate distance from main  
body, reconnaissance.]  
(b) [Instructions for sup-  
port—place and time of departure,  
or distance from reserve, any spe-  
cial reconnaissance.]  
(c) [Instructions for rear  
cavalry—place and time of depart-  
ure, road or country to be covered,  
special mission.]  
(d) [Instructions for flank  
guard—place and time of depart-  
ure, route, special mission.]
4. [Instructions for field train when necessary—usually to  
join train of main body.]
5. [Place of commander or where messages may be sent—  
location of lines of information.]
- [Authentication.]
- [How and to whom issued.]

## CHAPTER V.

## THE SERVICE OF SECURITY.

Q. What is meant by *the service of security*?

A. The service of security embraces all those measures taken by a command to protect itself from observation, annoyance, or surprise by the enemy.

Q. How is the security of a command provided for?

A. Ordinarily in part by the *independent cavalry*, which, operating far to the front, checks the opposing cavalry and sends in timely information of the movements of the enemy; but as a command is not always preceded by independent cavalry, and as this cavalry cannot always prevent sudden incursions of the enemy or discover his patrols, other means of security become necessary. This is obtained by covering the immediate front with detachments which remain constantly on guard, ward off minor attempts of the enemy, and check his more resolute advance long enough to enable the main body to prepare for action.

Q. What are these covering detachments called?

A. On the march they are called *advance*, *flank*, or *rear guards*, according to the nature of their work; in camp or bivouac they are called *outposts*.

Q. Is there any similarity in the formations assumed by these bodies?

A. As the principal duty of these bodies is the same, viz., that of protecting the main body, there is a general similarity in the formations assumed by



them. There is (1) the *cavalry covering the front*; next (2) a *group, or line of groups, in observation*; then (3) the *support, or line of supports*, whose duty is to furnish the observation groups, and check the enemy pending the arrival of reinforcements; still further in rear is (4) the *reserve*.

Q. How are troops detailed for the service of security?

A. When it becomes necessary to provide for the security of a command, the commander issues the proper *field order*, in which he details certain troops for this duty, names their commander, and gives such general instructions as may be necessary.

Q. What kind of troops are generally detailed on this duty?

A. In large commands troops from all arms are generally detailed, the proportion from each being determined by the tactical situation; but commanders *detail no more troops than the situation actually requires*, as an excessive amount of such duty rapidly impairs the efficiency of a command.

Q. What compliments are paid by troops on the service of security?

A. None; individuals salute when they address, or are addressed by, a superior officer.

Q. What would be the effect if troops moving in one body should come suddenly upon the enemy.

A. They would certainly be thrown into confusion, and perhaps defeated, before deployment for action could be effected. Moreover, insignificant bodies of the enemy could seriously delay the march of the column by causing it to halt and deploy for action.

Q. How then is a column of troops on the march divided?

A. Into a *main body*, an *advance guard*, a *rear guard* (if necessary), and such *flanking parties* or *guards* as may be required.

#### ADVANCE GUARDS.

Q. What are the *duties* of an advance guard?

A. The primary duty of an advance guard is to insure the safe and uninterrupted advance of the main body.

Specifically its duties are:

1. To guard against surprise and furnish information by reconnoitering to the front and flanks.
2. To push back small parties of the enemy and prevent their observing, firing upon, or delaying the main body.
3. To check the enemy's advance in force long enough to permit the main body to prepare for action.
4. When the enemy is encountered on the defensive, to seize a good position and locate his lines, *care being taken not to bring on a general engagement unless the advance guard commander is empowered to do so.*
5. To remove obstacles, repair the road, and favor in every way possible the steady march of the column.

Q. How are troops detailed for advance guard duty?

A. In the order directing an advance. This order is called a "march order," and designates the tactical components (independent cavalry, advance

guard, main body, etc.) into which the command is divided, names their commanders, gives a list of the troops of which they are composed, and a statement of the duties they are to perform.

*Strength.*

Q. What is the strength of an advance guard?

A. It depends upon the situation, and may vary from 1-9 to 1-3 of the strength of the whole command. The larger the force, the larger in proportion is the advance guard, for a large command takes relatively longer to deploy than a small one.

*Composition.*

Q. Of what troops is an advance guard composed?

A. In large commands it is usually composed of all arms, the proportions depending on the nature of the work, character of the country, etc. In open country it should be strong in cavalry and field artillery, but artillery is seldom assigned to the advance guard of a command not larger than a brigade. In such cases, however, when there is artillery with a command, an officer of that arm usually accompanies the advance guard for purposes of artillery reconnaissance. In swampy country or jungle it may be formed of infantry alone. When not preceded by independent cavalry, the advance guard must, as a rule, be strong in cavalry; in such cases the commander determines whether to attach all of the divisional cavalry to the advance guard, or retain a part for some special service. If the enemy is strong and near, and a battle seems imminent, the advance guard should be very strong in infantry and guns. If, however, it is desired merely to develop the enemy without serious-

ly engaging, the advance guard should consist of cavalry and light artillery (horse artillery, if possible), as these troops can be more readily withdrawn than infantry. In the pursuit of a beaten foe, or whenever the object is to follow and keep touch with the enemy, the proportion of cavalry should be as great as possible.

Machine guns materially increase the effectiveness of an advance guard. They are useful in holding bridges, defiles, etc., until reinforcements can be brought up.

Engineers are usually attached to an advance guard to remove obstacles, repair roads, etc. Circumstances may also require a bridge train to be attached.

The supreme commander generally retains control of the signal troops, and establishes such lines of information as he deems necessary. However, when the nature of the country favors communication by signaling, signal troops may be attached to the advance guard.

Sanitary troops usually accompany an advance guard.

The field trains of troops on advance guard duty generally accompany the field train of the main body.

**Q.** Why should an advance guard be composed of all arms?

**A.** Because reconnoitering duty can be performed more efficiently and more easily by cavalry than by infantry; because infantry has more resisting power than the cavalry; and because artillery is of great value in preparing the way for the advance guard and in compelling the enemy to deploy at a distance.

*Distance from Main Body.*

Q. How is the march of an advance guard regulated?

A. It depends upon the march order. In small commands, where there is no difficulty in keeping in touch with the main body, the march order generally requires the advance guard to regulate its march on the main body; but where the advance guard is large, or moves at a considerable distance in advance of the main body, the latter regulates its march on the advance guard.

While the distance between these two bodies should be great enough to prevent needless interruptions in the march of the main body, and to give the latter time to deploy should the enemy be encountered, it should never be so great that timely support of the advance guard becomes impracticable.

Q. What might result if the distance of the advance guard from the main body were too great, and what, if it were too small?

A. If the distance were too great, the advance guard might be forced into a heavy engagement while beyond the assistance of the main body, and might even be entirely cut off by an attack upon its flank and rear. If, on the other hand, the distance were not great enough, time could not be afforded for the preparation of the main body for action.

Q. When a large force is acting with energy and aggressiveness for the purpose of bringing on a battle, what is the rule?

A. The main body must be drawn nearer to the advance guard, as the latter must be promptly supported.

Q. How do the nature of the country and state of the weather affect this distance?

A. If the country is full of defensive positions, such as to admit of a sturdy delaying action on the part of the advance guard, the distance may be decreased. In foggy weather, or at night, or during a storm of rain or snow, the distance should be decreased, as well as the front covered by the scouting groups or flanking parties. If, on the other hand, the country is open and the weather clear, the distance may be increased.

*Forming the Advance Guard.*

Q. How is the advance guard formed?

A. On receipt of the march order, the advance guard commander estimates the situation and, at the proper time, issues the *advance guard order*. This order is written, dictated, or verbal, according to circumstances, divides the advance guard into its tactical components (advance cavalry, support, etc.), and gives the necessary instructions for each.

Q. What are the duties of the advance guard commander?

A. The advance guard commander is mounted and goes wherever he deems his presence necessary, though his habitual station is at the head of the reserve, or with the support when there is no reserve. He conducts the advance so as not to interrupt the steady march of the main body, and when ordered to move at a certain distance in front of the latter, maintains the necessary connection therewith. He bears constantly in mind the duties of an advance

guard, and studies the ground with a view to tactical dispositions should the enemy be encountered.

Q. What qualities does the commander of the advance guard need, and why?

A. Courage, self-reliance, and good judgment. A timid officer in command of an advance guard would suffer the column to be delayed by small parties of the enemy; a rash one would plunge into combat, and might thus impose upon his superior a course of action at total variance with his plans.

Q. What is done when the advance guard halts?

A. All approaches are reconnoitered and guarded, and an officer is sent to get an extended view from the highest available point. During a short halt, each part of the advance guard remains in the place where it is halted. If a prolonged halt is contemplated, it occupies ground that furnishes a good defensive position.

Q. How is information conveyed from one part of the advance guard to another and to the main body?

A. By wire, messengers, or some code of signals. Shouting and unnecessary firing are carefully avoided. The patrols fire only when they are certain that they have been seen by the enemy and that he is not retiring.

Q. How are the troops composing an advance guard generally distributed?

A. The advance guard order generally prescribes the following distribution of troops:

Advance Cavalry;

Support;

Reserve.

Q. How is the advance guard cavalry generally employed?

A. It depends upon the situation. Its proper place is in the direction of the enemy, and generally all or the greater part is used as advance cavalry. If weak in numbers, it may be assigned to the support.

*Advance Cavalry.*

Q. What is the advance cavalry, and what are its duties?

A. The advance cavalry is that part of the advance guard cavalry preceding the support. It reconnoiters far enough to the front and flanks to guard the column against surprise by *artillery fire*, and to enable timely information to be sent to the advance guard commander. If preceded by independent cavalry, the advance cavalry maintains connection therewith; if not, it pushes well out and endeavors to find the enemy, performing to a limited extent the functions of independent cavalry. Its commander should be bold, energetic, and capable; he sees that his command is supplied with articles required by patrols; his orders are usually verbal.

*Support.*

Q. What is the support of an advance guard?

A. That part following the advance cavalry and preceding the reserve. It varies in strength from  $\frac{1}{4}$  to  $\frac{1}{2}$  of the advance guard, and in mixed commands consists of infantry and generally a detachment of engineers. If there is no advance cavalry, some cavalry should be attached to the support for reconnoitering duty.

Q. How does the support march, and what are its duties?



A. As the support moves out it generally sends forward an *advance party* several hundred yards, the distance varying with the terrain and the size of the command.

The *advance party* supplements the work of the advance cavalry, reconnoitering to the front and flanks to guard the support against surprise by *effective rifle fire*. The patrol preceding the advance party on the line of march is called the *point*, and is commanded by an officer or an experienced non-commissioned officer. As far as practicable, reconnoitering to the flanks is done by mounted scouts, thus lessening the work of foot soldiers.

With the advance cavalry in front, but little reconnoitering by infantry is necessary, and the advance party is relatively small—one-eighth to one-third of the support. If there is no advance cavalry, the advance party is made stronger (about one-half of the support) and the flanks are guarded, if necessary, by additional patrols sent out from the support and even from the reserve.

Q. What are the duties of the *support commander*?

A. The *support commander* ordinarily marches with the advance party, but goes wherever needed. He is provided with a map, and with native guides if the latter be necessary, and is habitually mounted. He sees that the proper road is followed; that guides are left in towns and at cross-roads; that necessary repairs are made to roads, bridges, etc., and that information of the enemy or affecting the march is promptly transmitted to the advance guard commander. He endeavors promptly to verify information of the enemy.

*Reserve.*

Q. What is the composition of the reserve and where does it march?

A. The reserve consists of the remainder of the infantry and engineers, the artillery and the sanitary troops. The artillery usually marches near the head of the reserve; the engineers (with bridge train, if any) and special troops, at the rear. The reserve follows the support at several hundred yards' distance.

*Reconnaissance.*

Q. How is the reconnoitering work of an advance guard conducted?

A. In conducting the reconnaissance the patrols are, as a rule, small—from two to six men. If additional protection is necessary, a flank guard covers the threatened flank. The flanking patrols, whether of the advance cavalry or advance party, are sent out to examine the country wherever the enemy might be concealed. If the nature of the terrain permits, these patrols march across country or along roads and trails paralleling the march of the column. For cavalry patrols this is often possible; but with infantry patrols, and even with those that are mounted, reconnaissance is generally best done by sending the patrols to high places along the line of march to overlook the country and examine the danger points. These patrols report or signal the results of their observations and, unless they have other instructions, join their units by the most practicable routes, other patrols being sent out as the march proceeds and as the nature of the country requires.

Deserters, suspicious characters, and bearers of flags of truce, the latter blindfolded, are taken to the advance guard commander.

Civilians are not permitted to precede the advance guard.

Q. What important fact must be constantly considered in regard to the duties of an advance guard?

A. That the advance cavalry and the advance party are the *reconnoitering* parts, and that the support and the reserve are essentially the *fighting* parts of the advance guard.

Q. What should be done by the advance guard when the enemy is encountered?

A. As soon as the enemy is seen, the advance guard must endeavor to ascertain promptly whether it has to deal with an outpost of a stationary force, an advance guard of a marching body, or a flanking detachment of a column. It should lose no time in discovering where the enemy's main position is, or how far away is the marching column. The relative numbers and position and the orders under which the advance guard is acting decide the question of attacking or of taking up a defensive position. The offensive is preferable if an attack seems at all likely to succeed. If it be decided to attack, the reserve reinforces the support; if the defensive is decided upon, the support takes up a defensive position and is supported by the reserve; if the position cannot be maintained, the guard falls back slowly and stubbornly to a better defensive position or until the main body enters into the action.

*Advance Guards of Small Commands.*

Q. How are the foregoing dispositions modified in the case of small commands?

A. In forming the advance guard of a command smaller than a brigade, the foregoing distribution of troops is modified, depending upon the situation. A company usually sends forward only a point; a battalion or squadron, an advance party with a few patrols; for a single regiment a reserve in the advance guard is seldom necessary.

*Advance Guard of a Cavalry Command.*

Q. How does a cavalry advance guard compare with one composed of infantry?

A. It is similar in formation, except that the distances and intervals are greater, and its relative strength less.

Q. Why are the distances and intervals greater in the case of a cavalry advance guard than in one composed of infantry?

A. Cavalry possessing much greater mobility than infantry, the different covering bodies can be safely separated by greater distances.

*Security for the Head of a Force in Retreat.*

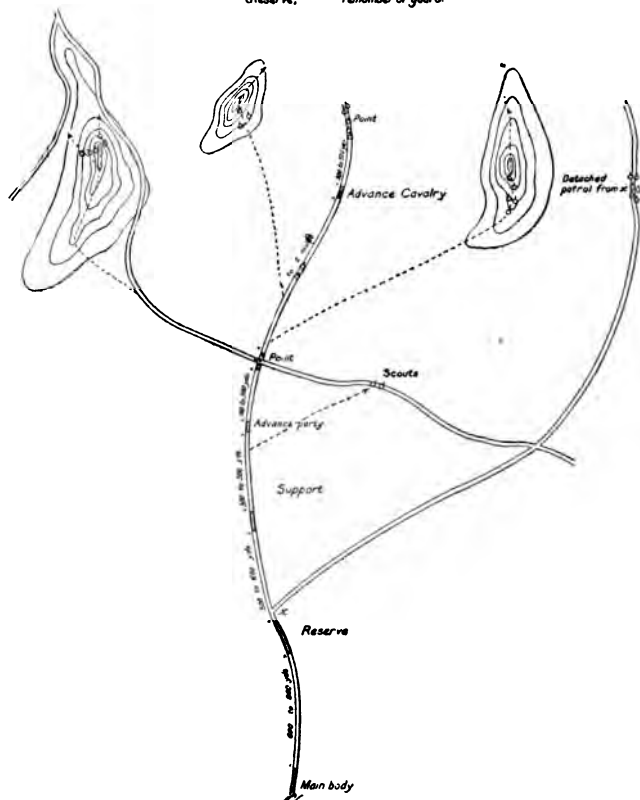
Q. What is meant by the *head* of a column?

A. The head of a column is its leading element, no matter in what direction the column may be facing. The other extremity is the *tail*.

Q. How is the head of a column in retreat protected?

# *Advance Guard of one Battalion of Infantry and one Troop*

Advance cavalry, 1 troop.  
 Distribution Support, 1 or 2 companies.  
 Reserve, remainder of guard.





A. In retreat a column is preceded by a body of troops designated as "leading troops," whose principal duty is to clear the road of obstacles and facilitate the withdrawal of the command. The strength and composition of such troops are determined by the situation. Engineers are generally necessary; cavalry is assigned to this duty to afford protection against guerillas or small hostile parties that may have succeeded in reaching the rear of the command. If the rear is seriously threatened, the leading troops march practically as an advance guard. Leading troops are sometimes referred to as the advance guard of a retreating force.

Q. Give a sketch showing how the troops of an advance guard composed of a battalion of infantry and a troop might be distributed.

A. (Diagram No. 1.)

Q. Assuming a division with two squadrons of independent cavalry to be operating alone, and that the following troops have been detailed as the advance guard—

- 2 regiments of infantry;
- 1 squadron;
- 1 battalion of artillery;
- 1 company of engineers;
- 1 ambulance company;

show how these troops might be distributed.

A. Independent Cavalry.  
(One or two marches.)

Advance Guard.

*Advance Cavalry:*

One squadron with point and flanking patrols;  
communication maintained with independ-

ent cavalry. (Point of advance cavalry to point of advance party at least 4 or 5 miles.)

*Support:*

Two battalions and mounted detachment of engineers. The support sends forward its *advance party*, one company, about 500 yards; the advance party is preceded from 300 to 500 yards by its *point*.

(About 1,000 yards.)

*Reserve—In Order of March:*

One battalion infantry; one battalion artillery; one regiment infantry; company engineers (less detachment); sanitary troops. (There may be a detachment of signal troops, though the division commander generally retains control of those troops.)

(One to two miles.)

**Main Body.**

**Q.** With little or no advance cavalry, what would be the strength of the advance party in the above advance guard?

**A.** It would be increased perhaps to the size of a battalion, depending upon the amount of patrolling.

**Q.** How is the steady march of the column maintained when all patrolling has to be done by foot soldiers?

**A.** From time to time patrols are sent from the advance party to high points overlooking the country, or to points where the enemy might be concealed. They report or signal the results of their observations and join the column by the most practicable route in the direction of the march. As they may not be able to join their units before the end of the day's march,



the advance party will grow smaller as the march proceeds, and may have to be strengthened by additional troops sent forward from the support.

### FLANK GUARDS.

Q. How are the flanks of a column protected?

A. The flanks of a column are protected in part by the advance guard, which carefully examines the ground on both sides of the line of march. It may be necessary, however, to provide additional security for a flank threatened by the enemy. This is done by sending a detachment, called a *flank guard*, to cover the exposed flank. The flanks of a column must be protected throughout its length; in long columns the large units may be directed to provide their own flank protection.

Q. What should be the strength and composition of flank guards, and what are their duties?

A. Flank guards vary in size from patrols to detachments of all arms. Their composition and formation depend upon the situation, though they are generally strong in cavalry on account of the necessity for rapid reconnaissance and communication. They may be composed exclusively of that arm, but when strong positions are to be held, or prolonged resistance to the enemy is expected, troops of all arms are necessary. Their duties are similar to those of an advance guard. They keep in constant touch with the column either by wire, signal, or messenger service.

Q. How are troops detailed on flank guard duty?

A. Generally in the march or advance guard order. In the latter case the advance guard is made

strong for that purpose. They may, however, be sent out during the march either from the main body or from the advance guard.

Q. How do flank guards march?

A. They march in a direction generally parallel to the column, keeping abreast of the unit from which detailed, or are sent to occupy favorable positions on a threatened flank, remaining there until the whole column has passed. In the latter case they join the rear guard and return to their commands at the end of the day's march. As a flank guard usually marches a greater distance than the body from which detailed, it is generally sent out in advance. On account of the hazardous nature of the operations, the field train of a flank guard usually conforms to the movement at a safe distance, or remains with the train of the main body.

Q. What is a *flank march*?

A. A march conducted by a body of troops in a direction parallel to the front of an enemy. The flank towards the enemy is then protected by a flank guard.

Q. How does a column on the march execute a flank march in the presence of the enemy?

A. Generally by converting the advance guard into a flank guard, and detailing a new advance guard to precede the column.

#### REAR GUARDS.

Q. What is a rear guard?

A. A body of troops detailed to protect the *rear* of a command on the march. Technically the term *rear* is the opposite of *front*, and means in a direction

away from the enemy. Strictly speaking, therefore, a rear guard is a body of troops detailed to protect the rear of an *advancing force*—one marching in the direction of the enemy. Long usage, however, has applied the term to those troops charged with the important duty of *covering a retreat*, and when a rear guard is spoken of without qualification, that is the idea intended to be conveyed. The term *retreat guard* in such cases might be a more logical designation.

Q. How are troops detailed on rear guard duty?

A. When a commander decides to retreat, he issues a *retreat order* in which he designates the component fractions into which the command is divided (leading troops, main body, rear guard, etc.), names the commanders, and gives the necessary instructions for each.

*Strength.*

Q. What is the strength of a rear guard?

A. The strength of a rear guard depends upon the nature of the country and the strength and character of the pursuing force. It cannot, like the advance guard, count on the support of the main body. On the other hand, it more often has an opportunity to fight on ground of its own selection. In good defensive positions, with natural or artificial obstacles, it gains valuable time by forcing the enemy to deploy and make detours.

As rear guards must be prepared to make stubborn resistance and submit to sacrifices, they are relatively stronger than advance guards. Their strength varies from one-third to one-sixth of the entire command. In a broken country full of good defensive positions, it would be less than in an open

country; and it would be greater when the pursuit was vigorously pushed in force than when it was feebly conducted by small parties.

Care and good judgment are necessary in determining the strength of the rear guard. If too large, too many troops would be kept upon a peculiarly trying duty, and the object of the commander to withdraw quickly as many men as possible to a place of safety would be thwarted. If too small, it would be continually driven in upon the main body, to which it would communicate alarm and confusion, and the latter might even be compelled to halt and fight for the protection of the rear guard.

#### *Composition.*

Q. Of what troops is a rear guard composed?

A. The composition of a rear guard is similar to that of an advance guard, though the proportion of artillery is usually greater, as that arm can force the enemy to deploy at long range. As a rule, it should be strong in cavalry.

Machine guns are especially useful in the passage of defiles and in covering the crossings of rivers.

Engineers and sanitary troops are usually assigned to rear guards.

During a retreat the outpost for the night usually forms the rear guard of the following day.

Q. What troops should be selected for the rear guard, and what should be done to raise their morale?

A. The best troops should be selected; generally those that have suffered least in the battle, or have gained some local success; and their morale should be still further raised, if practicable, by occasional am-

buscades or offensive returns against the enemy, whenever an opportunity of taking him at a disadvantage occurs.

*Forming the Rear Guard.*

Q. How is the rear guard formed?

A. On the receipt of the "retreat order," the rear guard commander organizes his command and issues a rear guard order.

Q. What qualities should be possessed by the commander of the rear guard, and (briefly) how should he conduct its operations?

A. He should be as prudent as a man can be without being timid, and as brave as a man can be without being rash. He should constantly present a bold front to the enemy, and should ever be ready to fight, even to the extent of sacrificing himself and his entire command if necessary; but he should remember that the great duty of the rear guard is to gain time, and he should know when to withdraw. He should be able to distinguish the enemy's preparations for a serious attack from insignificant demonstrations, and he should never allow the enemy to force him into a fight contrary to his own interests and intentions. He should never expect assistance, and should feel disgraced if the main body should be obliged to suspend its retreat to come to his aid.

*Distribution of Troops.*

Q. How are the troops composing a rear guard generally distributed?

A. The proximity and conduct of the enemy con-

trols, to a large extent, the formation of a rear guard. When it is not necessary to withdraw in deployed lines, the greater part of the rear guard marches on the road in column of route, taking up a formation resembling that of an advance guard faced to the rear. The distribution of troops is therefore similar to that of an advance guard, namely:

Reserve;  
Support;  
Rear cavalry.

The rear cavalry is that portion of the rear guard cavalry following the support. The support marches with a *rear party* and a *rear point*. Mounted engineers usually accompany the support and may be attached to the rear party. Where the cavalry is of sufficient strength and has horse artillery attached, the entire rear guard, excepting the reserve, may be composed of that arm. The reserve is composed mainly of infantry and artillery.

Should the pursuit be vigorous, the rear guard withdraws from position to position in deployed lines.

Q. When a rear guard is marching in column of route, what are the distances between the several parts, and how is communication maintained?

A. The distances of the rear guard from the main body and between the fractions of the rear guard are about the same as in the case of an advance guard. If marching at night, the rear guard draws nearer the main body. Communication is maintained by signal troops and mounted messengers or cyclists.

*Action of the Rear Guard.*

Q. How are defeated troops withdrawn from action?

A. The withdrawal of defeated troops is delayed, if possible, until night. If it becomes necessary to begin a retreat while an engagement is in progress, the rear guard is organized and takes up a defensive position, generally behind the fighting line; the latter then falls back under cover of the artillery and cavalry behind the rear guard, and begins the retreat.

Q. Why is it that a retreating army can be protected by a fraction of itself?

A. Because the enemy must change from order of battle to order of march to pursue, and he can at first bring only the heads of his columns against the rear of the retreating force.

Q. Why must a rear guard be organized as soon as possible?

A. The rear guard must be organized as soon as possible, even at the expense of a delay comparatively near the enemy; for to trust to speed entirely in escaping would be to make such long and continued forced marches as to ruin the efficiency of the army and disintegrate it by straggling.

Q. What is the duty of the rear cavalry?

A. The rear cavalry gives way before the enemy's pursuit only when absolutely necessary, maintains communication with and sends information to the rear guard commander, and pays special attention to the weak points in the retreat, namely, the flanks. It makes use of every kind of action of which it is capable, according to the situation, and, unless great-

ly outnumbered by hostile cavalry, should of itself cause considerable delay to the enemy.

Q. Give a brief outline of the conduct of a rear guard when the enemy is conducting an energetic pursuit.

A. When the enemy is conducting an energetic pursuit, the rear guard effects its withdrawal by taking up a succession of defensive positions and compelling the enemy to attack or turn them. When the enemy's dispositions for attack are nearly completed, the rear guard begins to fall back, the cavalry on the flanks being usually the last to leave. The commander designates a part of the guard to cover the withdrawal of the remainder; the latter then falls back to a new position in rear, and in turn covers the withdrawal of the troops in front. These operations compel the enemy continually to deploy or make turning movements, and constantly retard his advance. The artillery greatly facilitates the work by taking up successive positions where it can fire on the enemy at long range, thus compelling him to deploy at a distance and to march across country in a deployed formation.

Q. By what must the rear guard profit, and what two courses of action are then open to the enemy's choice?

A. The rear guard must profit to the utmost by the defensive features of the ground, and at every opportunity take up a defensive position. The enemy will then have but two courses of action open to his choice: either to attack with the heads of his columns, or to deploy for action. In the former, his advanced troops should be easily repulsed; in the latter, he will



be compelled to lose time in deploying, while the rear guard (which should wait until the enemy's dispositions for attack are about completed) should quickly ploy and disappear from his front, only to repeat the operation at the next favorable ground. In the meantime, the enemy, unable to advance quickly in deployed lines, again loses time in changing to a marching formation, and the main body of the retreating army steadily continues on its way without halting.

Q. When, and how, should offensive returns\* be made?

A. They are generally made when the rear guard is closely pressed by the enemy at a bridge, defile, or ford. They should not be pushed far, for their result, at best, can only be a moral one, and the distance between the main body and the rear guard must not be dangerously increased.

Q. How many guns should there be with the rear guard, and what may their effective use do?

A. There should be as many guns with the rear guard as can be effectively used and freely maneuvered. The effective use of artillery may obviate the necessity of deploying the other arms of the rear guard, the deployment of the enemy at a distance being compelled by the fire of the guns.

Q. How should the artillery of the rear guard be used, and what should be done if it becomes necessary to abandon the guns?

A. The fire of the artillery at short range should be as rapid as is compatible with its cool and intelligent action. If it becomes necessary to abandon the

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\*Assumption of the offensive by attacking the enemy to recover lost ground.

guns, the equipments and breech-blocks should be carried away, and, if there seems to be no hope of recovering the lost pieces, the guns should be burst and the caissons blown up. The danger of losing a few guns must never be made an excuse for a premature withdrawal.

Q. What care is observed by the rear guard commander when taking up a defensive position?

A. In occupying rear guard positions it is desirable (1) to make as strong a display of force as possible, and (2) to make sure of good lines of retreat. These lines, and the successive positions, should be reconnoitered by staff officers, and the march of the troops facilitated by the cutting of wire fences and the removal of other obstructions.

Q. What precautions should be taken to insure the right road being followed by the rear guard?

A. Uninterrupted communication must be maintained between the several parts of the rear guard and the main body. The road should be carefully marked, so that the rear guard may not lose its way.

Q. Why must the flanks of a rear guard be guarded with especial care, and what provision is made for protecting them from surprise?

A. Patrolling must be carried on with vigilance and energy, especially on the flanks. The enemy, finding a firm front opposed to all his direct attacks, will undoubtedly attempt to cut in on the flanks, where, in fact, always lie his most promising hopes of success; for if he can cause the rear guard to form front to a flank, any assault by which it can be pushed off the road will uncover the rear of the main body, and will be only less disastrous to the retreating army than the

destruction of the rear guard itself. Prompt notification of attempts against the flanks should be given by the patrols (who are often warned of them by a diminution of the enemy's forces following in rear), and the rear guard should then endeavor with celerity to slip past the menaced point; failing in this, it should form a strong front towards the attacking force.

Q. If the two armies are of approximately equal strength, why should the rear guard have, at first, an advantage over the opposing advance guard; and why does not this advantage continue?

A. If two armies are of approximately equal strength, the rear guard will be about as strong as the advance guard of the force pursuing it, and the advantage of a good defensive position should give it a superiority over the latter. But this superiority will be only temporary at best; for the advance guard is receiving constant accessions of strength from the rear, while the distance between the rear guard and the main body of the retreating force is constantly increasing.

Q. In regard to what is the pursuing army always in doubt?

A. The pursuing army will always be in more or less doubt as to the strength of the force which it finds barring its way, and it must act with prudence, or run the risk of a serious and costly repulse. The morale of the retreating force is also a matter of uncertainty to the pursuers, and this consideration also forbids rash action.

Q. What advantage has the rear guard over the pursuing force in regard to the ground?

A. It is not obliged to reconnoiter the ground over which it has to march. All necessary information as to the roads is furnished from the main body, and a well-qualified staff-officer with the latter should select defensive positions for the rear guard, and furnish its commander with a description (and, if possible, a topographical sketch) of the same. The positions would be ridges, sunken roads, villages, woods, bridges, or defiles.

Q. When should the rear guard make use of defensive positions?

A. When it is essential that the army should put distance between itself and the enemy, the rear guard must make use of every good defensive position to delay the pursuers; but no halt should be made for fighting when the necessity of checking the enemy and gaining time is not imperative.

Q. How long should the rear guard occupy a defensive position?

A. The rear guard must not be tempted by the great natural strength of a position to occupy it at the expense of being separated at too great a distance from the main body, nor to hold it so long as to become compromised in a regular engagement. The amount of resistance to be made by the rear guard will depend upon the judgment of its commander, or on the orders of the supreme commander.

Q. To what extent should the supreme commander supervise the operations of the rear guard?

A. At very important positions, he should join the rear guard, if necessary, superintending its formation for resistance, or even conducting its action. It is best, however, never to interfere with the commander

of the rear guard, if he understands his business and performs his part properly. The nature of his duty requires that he should have even greater independence of action than the commander of an advance guard.

Q. Why do defiles offer good opportunities to an energetic pursuer and to an able rear guard commander?

A. To the former they afford a chance of cutting off the rear guard by interposing a force at the entrance of the defile. To the latter they afford a double opportunity of administering a check to the enemy, who is compelled to narrow his front.

Q. How may a defile be defended at the entrance?

A. If practicable, the position at the entrance of the defile should be convex towards the enemy, so as to admit of ready withdrawal by the flanks. In defending a defile, the main body leaves a detachment to hold the heights on each side until relieved by the infantry of the rear guard. The artillery is generally stationed at the entrance of the defile, and the cavalry in the best position for dismounted fire-action—always at that part of the line which is to withdraw last. As soon as the enemy has not only deployed for attack, but is well committed to the assault, the artillery fires its parting round of shrapnel, and withdraws rapidly through the defile, followed by the infantry. The cavalry covers the withdrawal of the other arms, mounting at the last moment, and retreating rapidly through the defile, its retreat being protected, if practicable, by infantry skirmishers lining the crest on either side of the interior of the defile.

Q. How may a defile be defended at the outlet?

A. The outlet of the defile always affords a better position for opposing the enemy than the entrance;

for in making a stand with a defile at its back, the rear guard runs the risk, in case its flank is turned, of being cut off altogether. In making a stand at the farther side, the artillery is posted so as to rake the defile; and the infantry, so as to bring a converging fire on its outlet, detachments of infantry also holding the crest; while the cavalry is stationed so as to be able to charge the enemy in flank as he emerges from the defile. Enough of the enemy should be allowed to pass to enable the assault upon him to be more than a mere stroke at the head of his column; but the mistake of allowing too many to pass would be a fatal blunder. Here the judgment of the rear guard commander must come into play, and no rule or suggestion can aid him. The enemy having been severely handled and thrown back into the defile, the rear guard withdraws without delay.

Q. Besides fighting, what measures should be taken by the rear guard?

A. The pursuit may be further delayed by obstacles placed in the enemy's path; bridges are burned or blown up, boats removed or destroyed, fords and roads obstructed, tracks torn up, telegraph lines cut, and houses, villages, woods, and fields fired. Demolitions and obstructions are prepared by engineers, assisted, if necessary, by other troops detailed from the reserve, and completed by the mounted engineers of the rear party at the last moment.

The instructions of the supreme commander govern in the demolition of important structures.

Q. How may villages be utilized by a rear guard?

A. They may be fortified in some cases, but generally it will be more expedient to burn them, and thus

place a barricade of fire, so to speak, between the rear guard and the enemy; but this measure will, manifestly, be of value only when the enemy is following close upon the heels of the rear guard.

Q. What should always be resorted to by the rear guard?

A. Any means of producing suffering and inconvenience to the pursuers, such as to cause them to delay, should be resorted to by the rear guard, stopping only at such measures as are condemned by the laws of war.

Q. Are these negative measures sufficient in themselves?

A. No. They are merely helps, and the safety of the retreating force must depend upon the resolute action of the rear guard itself.

Q. What should be done with stragglers, and with the sick and wounded, with the rear guard?

A. The rear guard should collect all stragglers and compel them to move on, and it should not allow the sick or wounded to be left behind, unless they prove a dangerous encumbrance. If it becomes necessary to abandon the sick and wounded, enough sanitary troops and *matériel* are left with them to insure proper care while in the hands of the enemy.

Q. At each halt, what is done by the rear guard?

A. It chooses a good defensive position, and establishes its outposts towards the enemy.

Q. When an army is retreating by several parallel roads, how are the rear guards formed and commanded?

A. Each column will then have its own rear guard, each rear guard having its own chief, and all being

united, when practicable, under the command of one common superior. Connection should be maintained between the several columns, and between the different rear guards, by connecting groups or patrols.

*Rear Guard of an Advancing Force.*

Q. What is done when there is danger that the rear of an advancing column may be attacked?

A. If there is a possibility that the rear of the column may be attacked, a rear guard of suitable strength and composition is provided. If the hostile attempts are confined to guerillas, marauders, etc., the guard should be strong in cavalry.

Q. What are the duties of the rear guard on a forward march?

A. Its conduct is practically the same as that of the rear guard of a retreating force. It generally marches in rear of the field train and sanitary troops, those organizations following the combatant troops without distance. The rear guard should never begin its march until all the baggage has moved off. It is charged with the protection of the baggage from the forays of guerillas, and if the country is suited to partisan warfare, and the enemy's raiding parties are enterprising, its duty greatly increases in importance. It should carefully watch the flanks of the field train with patrols, of a number and size suited to the danger to be apprehended, and should be ready to repel attacks on the flanks as well as on the rear of the train.



## OUTPOSTS.

Q. What are outposts?

A. Detachments thrown out from a force when halted in order to protect it from surprise, annoyance, or observation by the enemy.

Q. What are the *duties* of an outpost?

A. The duties of an outpost may be summed up in the words *reconnaissance, observation, and resistance*. Specifically its duties are:

1. To protect the main body so that the troops may rest undisturbed.
2. In case of attack, to check the enemy long enough to enable the main body to make the necessary dispositions.

Q. What effect has a system of outposts on the health and efficiency of an army?

A. Unbroken rest at night being necessary for the preservation of the health and efficiency of troops undergoing the hardships and fatigues of a campaign, it is of the utmost importance that the repose of the army in camp or bivouac should not be disturbed by needless alarms. The army must feel that the vigilance of its outposts enables it to sleep in security.

Q. How are troops detailed on outpost duty?

A. When the commander halts his command for the purpose of forming camp or bivouac, he issues what is called a "halt order." This order designates the troops that are to form the outpost, names their commander, points out the general outpost line to be held, and gives instructions for the encampment of the remaining troops.

Q. When is the halt order issued?

A. To enable the outpost commander to make

suitable preparation for forming the outpost, the halt order should reach him before the end of the day's march. When this is done, the outpost commander can generally march his troops to the positions they are to occupy without delay.

Q. From what commands are outpost troops generally detailed?

A. During an advance outposts are usually detailed from the advance guard. In retreat the outpost for the night is detailed from the main command and usually forms the rear guard of the following day. If the command remains in camp or bivouac, the new outpost generally goes on duty at daybreak, and is detailed from the troops longest off such duty.

Q. If outposts are required on the flanks and rear, of what are they composed?

A. They are composed of the flank and rear guards, when such guards exist in sufficient strength; otherwise such outposts are taken from the main body, which will also furnish them when the duties of the flank and rear guards during the day have been especially trying.

Q. When issuing the halt order, what instructions does the commander give the outpost troops?

A. Only instructions of the most general nature, such as the line they are to occupy, the resistance they are to make if attacked, and the connection they are to maintain with other outposts, if any. Officers on outpost duty are given great latitude, so long as their dispositions insure ample warning and adequate resistance. (See forms of orders.)

Q. What general rules can be given as to the

manner in which outpost troops should perform their duty?

A. The vigilance of outpost troops must be unceasing, but they avoid bringing on combats or unnecessarily alarming the command. Firing disturbs the rest of troops, and if frequently indulged in, ceases to be a warning.

No trumpet signals, except "to arms" or "to horse," are sounded, and all unnecessary noises are avoided.

If it is desirable to annoy or deceive the enemy, the supreme commander gives the necessary orders. Countersigns are used in the field in exceptional cases only. During sieges their use is more common.

Q. What should be the *strength* of an outpost?

A. Only strong enough to accomplish its purpose. As a rule, an outpost should not exceed one-sixth of the whole command, and should be less if possible. If at the end of a march the halt is for the night only, and danger is not imminent, simple measures, like detached posts and a few patrols, generally suffice. If there is independent cavalry covering the front, a strong outpost is generally not required. On the other hand, if a command is in close proximity to hostile troops and expecting an attack, the outpost should be strong, occupying practically a defensive position.

Q. What is the nature of the outpost duty when hostile troops confront each other in lines of battle?

A. When troops in action suspend hostilities for the night, they generally bivouac in line of battle. In such cases, and during siege operations, surprise is prevented by *posting sentinels and sending out patrols*;

outposts in front interfere with the effective fire of the line. In certain situations search-lights are useful.

Q. What kind of troops are detailed on outpost duty?

A. A mixed outpost is composed principally of infantry. The infantry is charged with the duty of local observation, especially at night, and with resisting the enemy long enough for the main body to prepare for action. Cavalry is added for purposes of reconnaissance, and is very useful in open country during the day. Artillery is useful to outposts when its fire can sweep defiles or large open spaces, and when it commands positions that might be occupied by hostile artillery. The guns are carefully concealed or protected, and are usually withdrawn at night.

Q. How are other troops employed with outposts?

A. Machine guns are useful to command approaches and check sudden advances of the enemy.

Engineers are usually attached to an outpost to assist in constructing intrenchments, clearing the field of fire, and opening communications laterally and to the rear.

The supreme commander generally retains control of the signal troops, and establishes a line of information to the reserve, and from the reserve to each support and important detached post.

It is generally unnecessary to attach sanitary troops to an outpost, those assigned to the organizations being sufficient.

Q. What is done with the field trains of troops on outpost duty?

A. The field trains of troops on outpost duty generally join their organizations; if an engagement is probable, they may be held in rear.

Q. When a command on the march is to halt for the night, what determines the selection of the outpost position?

A. The nature of the country and the place chosen for the main body to camp. The camping ground is selected by the supreme commander, or by a staff officer sent forward for that purpose. The troops must have water and fuel and at the same time be safe from surprise by the enemy. The selection of an outpost position is therefore generally a compromise between conflicting requirements.

Q. State the requirements of a good outpost position.

A. It should be so chosen that the main body cannot be reached by the enemy's artillery fire. In large forces the distance of the *line of resistance* from the main body should be two or three miles; for a command smaller than a division the distance is generally less. The line of resistance should have a good view and field of fire to the front, and concealment and shelter from the enemy's fire. There should be good communications to the rear and good lateral communications, or at least no impassable obstacles extending from front to rear within the lines. Commanding positions from which a wide extent of country is visible greatly facilitate observation. The outpost must cover the front of the army and overlap its flanks, unless the latter are protected by

impassable obstacles, or by other troops. A prominent natural feature should be selected to mark the general line, such as a ridge, a river, or the farther edge of a wood. The most favorable position is one which furnishes a good view and field of fire to the front, while affording concealment from the enemy and shelter from his fire. A strong defensive line is of greater value than ease of observation; difficulties of observation can be offset by diligent patrolling.

Q. State what furnishes one of the best, and what one of the worst, outpost positions.

A. One of the best positions is a wood held at the edge toward the enemy, and one of the worst is a wood held at the nearer edge.

Q. What should generally be the shape of the outpost line?

A. It should be convex towards the enemy, or straight with its extremities thrown back. Unless the nature of the ground compels, it should never be concave, even when that is the shape of the position which it covers. It does not necessarily conform strictly to the line of the position in any case. The ground occupied resembles in its general outline an open fan.

Q. What general rules are observed as to the preparation of an outpost position?

A. The advance portions of the outpost *habitually* intrench and strengthen their positions, clear the field of fire when practicable, and open or improve communications laterally and to the rear. Obstacles are placed so as to delay the enemy under fire without affording him protection. Barbed wire is often available for this purpose. Distances to conspicuous

objects in the foreground and within range are measured or estimated, and the men made familiar with the ranges.

The degree of preparation of the outpost position, beyond these essentials, depends upon the length of time it is to be occupied. Whenever a command is to remain in the same place more than one day, or the ground is to be subsequently occupied by other troops, the rules for sanitation of camps and bivouacs are carefully observed.

*Establishing the Outpost.*

Q. Give the preliminary steps necessary in establishing an outpost.

A. On receipt of the "halt order" the outpost commander estimates the situation and issues the outpost order. This order gives the *approximate* line of resistance to be held, divides the outpost into its tactical components (advance cavalry, supports, etc.), and gives the necessary instructions for each.

From his map and from the information furnished in the halt order, the outpost commander should be able to *decide upon the essential dispositions while the troops are still in march*; that is, he should be able to divide the line of resistance into sections, assign a support to each, designate the disposition of the reserve, and give instructions for the cavalry. As the movement of troops across country, especially at night, is difficult, he places the supports so as to command the roads. For this reason, when dividing the line of resistance into sections, he is careful to see that the dividing lines are not on roads or where the enemy can readily approach.

**Q.** How are the sections of the line of resistance designated?

**A.** The limits of each section are carefully designated thus: From —, exclusive (or inclusive), to —, exclusive (or inclusive). The length of a section varies with the terrain and the strength of the support.

**Q.** How long a section can a support of one battalion cover?

**A.** It seldom exceeds 2500 yards.

#### *Distribution of Troops.*

**Q.** What distribution of troops is generally made in the outpost order?

**A.** Advance cavalry;  
Supports;  
Detached post or posts;  
Reserve.

**Q.** What is the advance cavalry?

**A.** That part of the outpost cavalry in front of the supports. When an outpost is detailed from the advance guard, the advance cavalry of the advance guard becomes the advance cavalry of the outpost, and continues the work of reconnaissance until recalled for the night.

**Q.** How do the fractions into which outpost troops are divided move to their positions?

**A.** The reserve, supports, and detached posts proceed to their respective positions by the shortest routes, providing for their own security.

**Q.** When, at the close of the day's march, the advance guard forms the outpost, what portions of it constitute the various parts of the outpost?



A. The support (increased if necessary) furnishes the supports, and the reserve constitutes the reserve of the outpost. When the place for camp or bivouac is selected, the advance guard marches to its post as an outpost in the same general manner as though detailed from camp.

Q. When should outpost troops be in the position they are to occupy, and why?

A. When practicable, outposts should be in position before dark, so that the troops can *become acquainted with the country* and make preparation for defense.

Q. What are the duties of the outpost commander after he has issued the outpost order?

A. As soon as practicable the outpost commander makes a careful inspection of the outpost position and orders such changes in the dispositions as he deems necessary. He sees that the supports connect with each other, and opens communications laterally and between the supports and the reserve. If, after making his inspection, he deems *extensive* changes necessary, he issues a second outpost order embodying the new disposition. To avoid observation by the enemy, the changes are generally made after dusk. His station is with the reserve, though he goes wherever necessary.

Q. When is a second outpost order necessary?

A. When the additional instructions issued by the outpost commander, or the changes made by him, should be known to the entire outpost.

Q. Should an outpost be drawn closer to the main body at night in order to diminish the front?

A. In civilized warfare, it is seldom necessary to draw the outpost closer to the main body at night

in order to diminish the front; nor is it necessary to strengthen the line of observation, as the enemy's advance in force must be confined to the roads. The latter are therefore strongly occupied, the intervening ground being diligently patrolled.

In very open country, or in war with savage or semi-civilized people familiar with the terrain, special precautions are necessary.

Q. Give a description of an outpost after it is in position.

A. In front, reconnoitering towards the enemy, is (1) the *advance cavalry*; then comes (2) the *line of observation* occupied by small groups of men sent out from the supports; in rear of the line of observation is (3) the *line of resistance*, on or near which the supports are posted, and which becomes the *first line of battle* if the enemy makes a determined advance; in rear of the line of resistance, centrally located, is (4) the *reserve*; still further in the rear is the main body. In small commands the reserve is generally omitted, the main body taking its place.

Q. How may the relative positions of the line of observation and line of resistance vary?

A. The nature of the country may cause the line of observation practically to coincide with the line of resistance.

It is also possible for the line of resistance to be in advance of the line of observation; for example, a low range of hills crossing the enemy's line of advance might be occupied by placing trenches along the foot to secure a grazing fire, sentinels to watch for the enemy's approach being posted along the

crest in rear. At night the front of such a position is covered by patrols.

Q. In the disposition of an outpost, what attention is paid to the different tactical units?

A. They should, as far as practicable, be kept intact.

*Advance Cavalry.*

Q. What is the duty of the advance cavalry?

A. By day the advance cavalry reconnoiters in advance of the line of observation. If there is independent cavalry in front, the advance cavalry maintains connection therewith and reconnoiters only where necessary. At night, however, that the horses may have needed rest and because the work can be better done by infantry, the greater part of the advance cavalry is usually withdrawn in rear of the supports, generally joining the reserve, small detachments being assigned to the supports for patrolling at a distance. Generally instructions for the advance cavalry are given by the outpost commander, but details are left to the subordinate.

With efficient cavalry in front, the work of the infantry on the line of observation is reduced to a minimum.

*Supports.*

Q. What is the strength of the supports, and how are they numbered?

A. The supports comprise about one-half the infantry of the outpost. They are numbered from right to left. The section of the line of resistance which each is to occupy is given in the outpost order.

Q. What is the duty of a support commander?

A. At the proper time and by the most convenient route, he marches his support, generally preceded by an advance guard, to the ground it is to occupy. When practicable, he should precede the support and make a rapid examination of the terrain. As the support arrives upon the ground it is to occupy he adopts temporary measures for security, and sends out *observation groups*, varying in size from four men to a platoon, to watch the country in the direction of the enemy. These groups are called *outguards*, and are sufficient in number to cover the front of the support and to connect where necessary with the outguards of the adjoining supports. The line occupied by the outguards is the *line of observation*.

After tentatively establishing the outguards, the commander selects a defensive position on the general line of resistance, where he not only commands the approaches, but can render assistance to the adjoining supports, and gives instructions in regard to intrenchments and obstacles. He then makes a more careful reconnaissance of the section assigned him, rectifies the positions of the outguards, gives them instructions as to their duties in case of attack or when strangers approach their posts, *points out lines of retreat in case they are compelled to fall back to the supports*, selects, if necessary, places for additional posts to be occupied at night or during fog, sees that suitable connections are made between his and the adjoining outguards, and between his and the adjoining supports, and questions subordinate commanders to test their grasp of the situation and knowledge of their duties. On returning to the support he sends a

report with a *sketch* to the outpost commander, showing the dispositions made.

Q. What regulates the position of the supports, and what should be its general requirements?

A. The ground regulates their position, as they occupy the line of resistance. The position selected should afford a good general line of defense, ground uniformly moderately good being preferable to that which is very strong in some parts and weak in others.

Q. What is required of the men composing the support?

A. The support should have one or more sentinels posted to guard the property and watch for signals from the outguards, but may relax to some extent the watchfulness exacted from the latter. The men stack arms and are allowed to remove their accouterments (excepting always the cartridge-belt), but they are not permitted to wander away from the post of the support, and must be ready at all times to fall in. They are usually allowed to light fires, and may be required to do the cooking for the outguards as well as for themselves. No shouting or unnecessary noise of any kind is permitted in any part of the outpost. Fires are concealed as much as possible, and the messing is done by reliefs.

Mounted messengers ordinarily do not unsaddle; they rest, water, and feed as directed.

### *Outguards.*

Q. Describe the outguards, and give in detail a statement of their duties.

A. Outguards vary in size from four men to a

platoon, but are no larger than necessary to watch the country, drive back small hostile patrols, and furnish reliefs for the sentinels. They are numbered from right to left for each support. Their duty is to maintain uninterrupted observation of the ground in front and on the flanks; to report promptly hostile movements and other information relating to the enemy; to prevent unauthorized persons crossing the line of observation; to drive off small parties of the enemy, and to make temporary resistance to larger bodies. Outguards of eight men are convenient, as they furnish, besides the commander, relief for double sentinels and an extra man for messenger duty and to assist in patrolling.

When an outguard reaches the line of observation, it takes a concealed position where the men are allowed to rest, and posts one or more sentinels a few yards in advance to overlook the country. Single sentinels are used in open country, in the day time; double sentinels in close country, in thick weather, at night, or when special vigilance is necessary.

When necessary, outguards patrol along the line of observation between the posts; patrolling to the front is performed from the support. Communications with adjoining outguards and with the support is maintained by means of signals, messengers, or wire.

When resting, members of an outguard retain their weapons in position for immediate use and do not remove their equipments. Fires are not permitted, unless in cold weather they become necessary, and then they are concealed.

Q. What is the interval between consecutive outguards, and how far are they posted in advance of the support?

A. The intervals between outguards and their distances from the support depends upon the situation and terrain. The line of observation is not necessarily continuous, but avenues of approach must be carefully guarded. At night it may be necessary to push one or more of the outguards farther to the front. The interval varies from 100 to 400 yards; the distance from the support, from a few to several hundred.

Q. How many outguards are furnished by a support?

A. As many as may be necessary to cover the line of observation. This is determined by the support commander.

*Sentinels.*

Q. How are the sentinels posted?

A. If practicable, troops on outpost duty are concealed, and all movements made so as to avoid observation by the enemy; sentinels, however, are posted so as to have a clear view to the front, and, if practicable, to be able, by day, to see the sentinels of the adjoining outguards. Double sentinels are posted near enough to each other to communicate easily in ordinary voice.

Q. How long are sentinels kept posted, and how does the outguard commander ordinarily determine how many sentinels to post?

A. Sentinels are generally on duty two hours out of six. For every sentinel and for every patrol

there should be at least three reliefs; therefore, one-third of the strength of the outguards gives the maximum number of men that should be on duty as sentinels and patrols at one time.

Q. How is the field of observation of sentinels extended?

A. Skillful selection of the posts of sentinels increases their field of observation. High points, under cover, are advantageous by night as well as by day; they increase the range of vision and afford greater facilities for seeing lights and hearing noises. Observers with good field-glasses may be placed on high buildings, in church steeples, or in high trees.

Q. What precautions are taken to conceal the positions of sentinels?

A. Glittering objects on uniform or equipment are concealed. It is seldom necessary to fix bayonets, except at night, in dense fog, or in very close country.

Reliefs, visiting patrols, and inspecting officers approach sentinels from the rear, remaining under cover if possible.

#### *Instructions for Sentinels.*

Q. What instructions are given the sentinels?

A. The instructions given a sentinel on the line of observation embrace the following:

Where the enemy is or is supposed to be, and the direction from which he may be expected to come; the names of villages, streams, and prominent features in sight, and where the roads lead.

The number (if any) of his post, and the number of his and of the adjoining outguards; the position of the support; the line of retreat to be followed if the



outguard is compelled to fall back; the position of advance detachments, and whether friendly patrols are operating in front.

He watches to the front and flanks without intermission, and devotes special attention to unusual or suspicious occurrences; if he sees indications of the enemy, he at once notifies his immediate superior; in case of imminent danger, or when an attack is made, he gives the alarm by firing rapidly.

By day, officers, noncommissioned officers, and detachments recognized as part of the outpost, and officers known to have authority to do so, are allowed to pass in or out; all others are detained and the outguard commander notified.

At night, when persons approach his post, the sentinel comes to a ready, halts them, and notifies the outguard commander; the latter challenges, ascertains their identity, and acts accordingly.

Individuals who fail to halt, or otherwise disobey a sentinel, are fired upon after a second warning, or sooner if they attempt to attack or escape.

Deserters are required to lay down their arms, and a patrol is sent out to bring them in. Deserters pursued by the enemy are ordered to drop their arms and an alarm is given; if they fail to obey, they are fired upon.

Bearers of flags of truce and their escorts are halted and required to face outward; they are then blindfolded and disposed of in accordance with instructions from the support commander; if they fail to obey, they are fired upon. No conversation with them is permitted.

At night a sentinel remains practically stationary, moving about for purposes of observation only; he does not sit or lie down unless authorized to do so. In the day time he makes use of natural or artificial cover and assumes such positions as give him the best field of view. He informs passing patrols of what he has seen. His weapon is habitually loaded and locked and carried at will.

*Detached Posts.*

Q. What is a detached post?

A. A detached post is practically the same as a support of an outpost, but occupies a position at some distance from the general line of resistance.

Q. For what purpose are detached posts established?

A. To hold points important to the outpost cavalry, such as a ford or a junction of roads; to occupy positions especially favorable for observation, but too far to the front to be included in the line of observation; or to protect flanks of the outpost position.

Q. How are they established?

A. Generally by the outpost commander; but a support commander may find it necessary to establish a post practically detached from the rest of his command. The duties of a detached post are given in the order by which it is established.

*Reserve.*

Q. What does the reserve constitute, and of what does it generally consist?

A. It constitutes the general support for the line of resistance, and in large commands usually consists

of all three arms. Of the troops detailed for outpost duty, about one-half of the infantry, generally all of the artillery, and the cavalry not otherwise employed are assigned to the reserve.

Q. What considerations influence the selection of its position?

A. It should be concealed from the enemy, and should be posted as centrally as practicable, so as to enable it to move quickly to any endangered point. It may sometimes be divided into two parts, to facilitate supporting the more advanced bodies; and it should be upon the principal line or lines of retreat to the main body.

Q. What rules obtain in regard to the men and horses of the reserve.

A. The same as in case of the supports; the arms are stacked and equipments (except cartridge-belts) may be removed; fires may be lighted, and in the exceptional cases where fires are prohibited to the supports, it must do the cooking for them.

When necessary, the outpost order states what is to be done in case of attack, designates places of assembly, and provides for interior guards. Instructions may be given for messing, feeding, watering, etc. In the vicinity of the enemy, or at night, a portion of the infantry may be required to remain under arms; the cavalry to hold their horses, cinchas loosened; the artillery to remain in harness, or to take up a combat position.

Q. What is done in case of alarm?

A. In case of alarm, the reserve prepares for action without delay, and word is sent to the main body. In combat, the reserve reinforces the line of

resistance, and if unable to check the enemy until the arrival of the main body, delays him as much as possible.

Q. What is the distance of the reserve from the line of resistance?

A. It varies, but is generally about half a mile.

Q. What is the distance from the main body to the reserve?

A. It varies with the size of the former, the nature of the terrain, situation, etc.

Q. When may the reserve be dispensed with?

A. In the case of a small force which can prepare quickly for action, or when the main body bivouacs in order of battle, the reserve may sometimes be dispensed with.

Q. How is communication between the posts of an outpost, and between the reserve and main body, maintained?

A. By wire, signals, or messenger service. In large commands with signal troops, a wire should be run from the main body to the reserve, and from there to each support and important detached post.

#### *Outpost of a Small Command.*

Q. How may the foregoing dispositions be altered in case of a small command.

A. The outpost of a small command may consist of outguards only, without supports or reserve, part of the main body remaining in such state of readiness as the situation demands.

#### *Outpost Patrols.*

Q. How are outpost patrols classified?

A. Outpost patrols are divided into those that

operate beyond the lines and those whose duty lies principally within the lines. The former, called *reconnoitering patrols*, scout in the direction of the enemy; the latter, called *visiting patrols*, maintain communication between the parts of the outpost and supervise the performance of duty on the line of observation.

Q. Why is reconnaissance necessary after the line of observation has been established?

A. The sentinels guard against surprise, but the information they can gain in regard to the enemy is generally very slight. This information must be sought by reconnoitering patrols sent out towards the enemy, to watch his movements, and, if possible, examine his position.

Q. By what troops is the reconnaissance performed?

A. The outguards patrol only along the line of observation; patrolling in advance of this line and to the flanks is done from the supports.

Q. Why is patrolling from the supports necessary when there is advance cavalry in front?

A. As an additional precaution, but mainly in order that the men may become familiar with the ground and thus be able to patrol more effectually at night.

Q. What is the strength of *reconnoitering patrols*, and what are their duties?

A. Reconnoitering patrols are composed of at least two men and a skillful leader, who, in important cases, should be an officer. They obtain information, ascertain the presence of the enemy, or discover his approach.

Q. What rules do reconnoitering patrols observe when they cross the line of observation?

A. All patrols, when they cross the line of observation, inform the nearest sentinel of the direction in which they are to advance; on their return they similarly report what they have seen of the enemy; signals are agreed upon so that they can be recognized when returning.

Q. What patrols should be used at night, and what must be constantly varied in regard to them?

A. It is a good rule to use at night the patrols that have scouted the same region by day. The time, direction, and manner of sending out patrols must be constantly varied, in order that the enemy may not be prepared to cut them off. A small patrol must constantly bear in mind that its business is not to fight, but to observe. It should accordingly be careful to avoid engagements, unless ordered to take prisoners.

Q. When is the duty of a reconnoitering patrol best performed?

A. When it comes back with valuable information without having been seen by the enemy.

Q. What precautions are taken in regard to ground near the line of observation that cannot be watched by the sentinels?

A. Any ground near the line of observation which might afford cover for troops, or for scouts or spies, and the approach to which cannot be observed by sentinels, is searched frequently by patrols. The supports on the flank of an outpost position patrol the country on the exposed flank.

Q. How far do reconnoitering patrols advance beyond the line of observation?

A. Cavalry patrols may push out several miles. Infantry patrols at night seldom advance more than half a mile; during the day may go farther.

Q. What is the composition of *visiting patrols*, and what are their duties?

A. Visiting patrols usually consist of a noncommissioned officer and two or three men. They are sent out by the support every hour or two to the outguards and adjoining supports. They examine suspicious points too distant for the sentinels to inspect, relieve sick or wounded sentinels, and take charge of detained persons.

Visiting patrols and reliefs should not march in the open and thereby expose the position of sentinels.

#### *Examining Posts.*

Q. What are examining posts?

A. An examining post is a small detachment under the command of an officer or a non-commissioned officer, stationed at some convenient point to examine strangers brought in by the outguards or patrols.

Q. When are such posts used?

A. Their use is not common, but they are sometimes necessary when the outguards do not speak the language of the country, when preparations are being made for a movement and strict scrutiny at the outguards is ordered, and sometimes at sieges. When they are used, strangers approaching the line of observation are passed along to an examining post. No one except the support commander is allowed to

converse with persons brought to an examining post. Prisoners and deserters are at once sent under guard to the rear.

*Relieving an Outpost.*

Q. How long are outposts kept on duty, and when are they relieved?

A. Ordinarily, in small commands, outposts are not kept on duty longer than twenty-four hours. In temporary camps or bivouac they are generally relieved every morning. After a day's advance, the outpost for the night is usually relieved the following morning when the support of the new advance guard passes the line of resistance. In retreat the outpost for the night usually forms the rear guard for the following day, and is relieved when it passes the line of observation of a new outpost.

Q. What time is an enemy most liable to attack an outpost, and what precautions are taken?

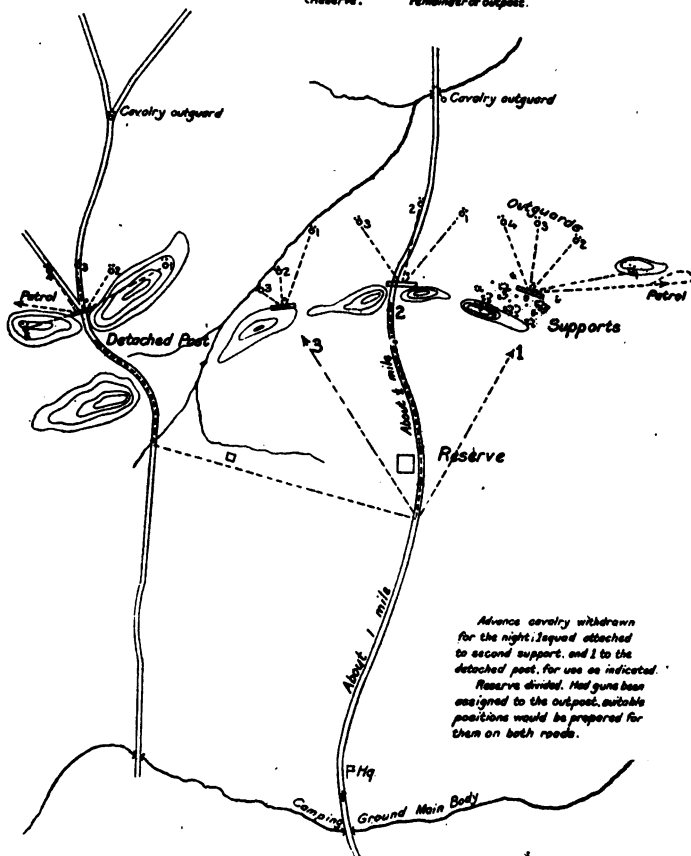
A. Evening twilight and shortly before dawn are hours of special danger. The enemy may attack late in the day in order to establish himself on captured ground by intrenching during the night; or he may send forward troops under cover of darkness in order to make a strong attack at early dawn. Special precaution is therefore taken at those hours by holding the outpost in readiness, and by sending patrols in advance of the line of observation. If a new outpost is to be established in the morning, it should arrive at the outpost position at daybreak, thus doubling the outpost strength at that hour.

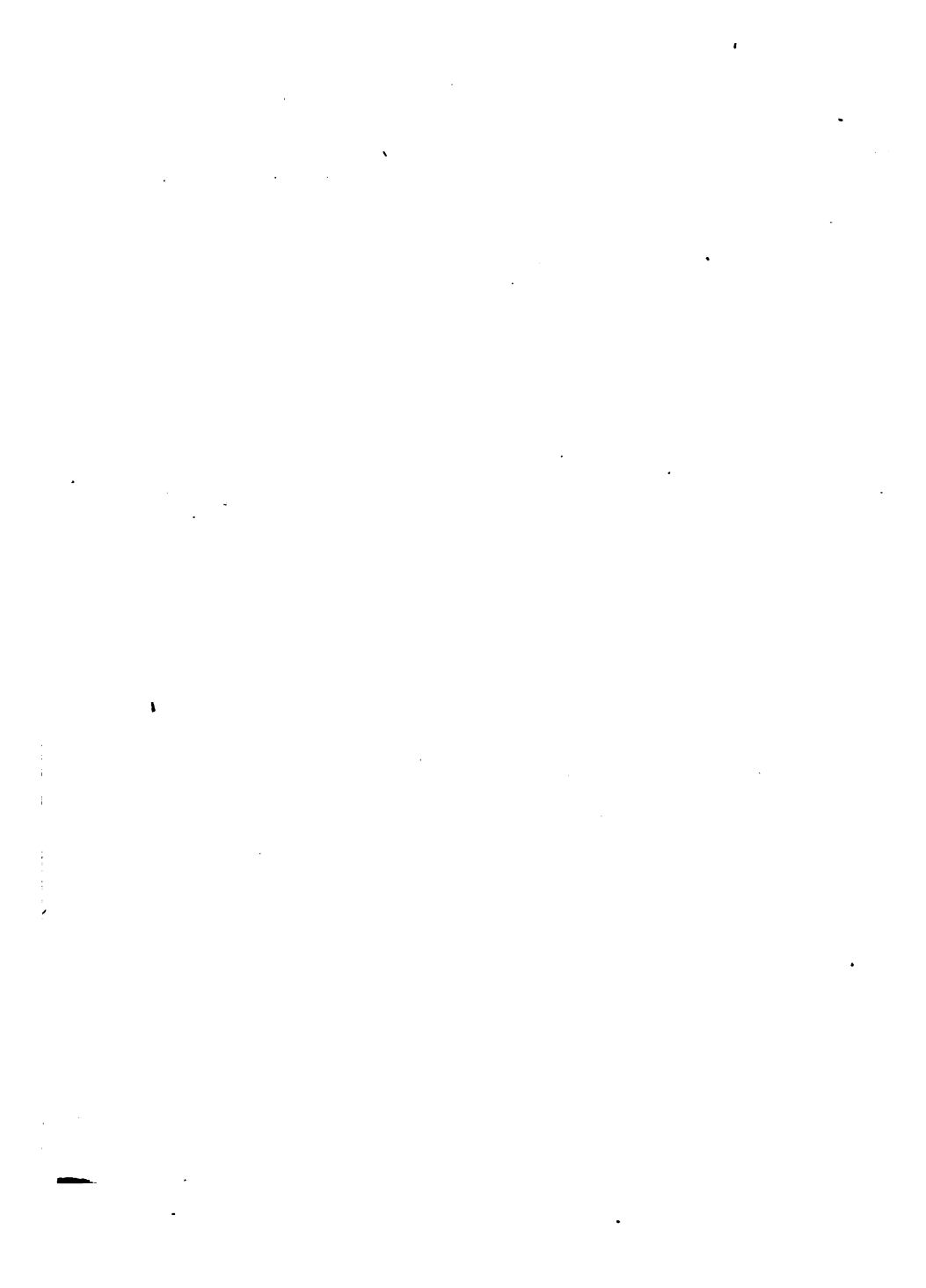
Q. When once in their positions, how long do the fractions of an outpost remain on duty?



# *Outpost of two Battalions of Infantry and 1 Troop*

Distribution { Advance cavalry: 1 troop.  
Supports: 3 companies.  
Detached post: 1 company  
Reserve: remainder of outpost.





A. When once in position, the fractions of an outpost, except sentinels and patrols, are not relieved, as a rule, during their tour, unless on duty longer than twenty-four hours. Outguards that have become familiar with the country during the day-time should remain on duty that night. Sentinels are relieved once in two hours, or oftener, depending on the weather. The work of patrols is regulated by the support commanders.

Q. Describe the manner of relieving an outpost.

A. The commanders of the various fractions of an outpost turn over their instructions, written and verbal to their successors, together with the latest information of the enemy and a description of the important features of the country. When practicable, the first patrols sent out by the new outpost are accompanied by members of the old outpost who are familiar with the terrain. When relieved, the old outguards return to their supports, the supports to the reserve, and the latter to the main body; or, if more convenient, the supports and reserve return to the main body independently, each by the shortest route.

When relieved by an advance guard, the outpost troops ordinarily join their units as the column passes.

Q. Make a sketch showing how the troops of an outpost consisting of two battalions of infantry and a troop might be distributed at 10 p. m.

A. (Diagram No. 2.)

#### *Cavalry Outposts.*

Q. How are the outposts of a cavalry command established?

A. Independent cavalry covering a command or on special missions, and occasionally the advance cavalry of a mixed command, bivouac where night overtakes them, and in such cases furnish their own outposts. The latter are established, in the main, according to the foregoing principles, care being taken to confine outpost work to the lowest limits consistent with safety. No precaution, however, should be omitted, as the cavalry is generally in close proximity to the enemy, and often in territory where the inhabitants are hostile. The distances are generally greater than in case of an infantry outpost, but a support of one squadron covers with its outguards a section rarely exceeding two miles.

If a cavalry command is concentrated, the outpost problem presents little difficulty; but if scattered, the solution is not so easy. There is a *line of observation* and a *line of resistance*, and in rear of the latter the main body, or a reserve and a main body if the command is large, the latter division being made more for convenience of camping than for defense.

The line of resistance is occupied by the supports, the latter sending out the necessary outguards and patrols. Each outguard furnishes its own videttes\* or sentinels. An outguard of four troopers is convenient for the daytime, but should be doubled at night, and at important points made even stronger. The sentinels are generally dismounted, their horses being left with those of the outguards.

Q. How are the positions of the supports and outguards prepared?

A. As mounted cavalry at night can offer little

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\*Mounted sentinels.

resistance, the supports and outguards are generally dismounted, the horses under cover in rear, and the positions are strengthened by intrenchments and obstacles. By holding villages, bridges, defiles, etc., with dismounted rifle fire, cavalry can greatly delay a superior force. A road is opened along the line of resistance to enable the cavalry to concentrate quickly at a threatened point.

Q. When independent cavalry covering a wide front is to establish an outpost, what should the outpost order designate?

A. The outpost order designates the *general line of resistance* and assigns to each section thereof a squadron or troop as support.

Q. As such a line is of necessity weak, what precautions are taken?

A. The principal reliance is placed on distant patrolling. If threatened by infantry, timely information enables the threatened point to be reinforced, or the cavalry to withdraw to a place of safety.

Q. How is the advance of hostile cavalry opposed?

A. If there is danger from hostile cavalry, the roads in front are blocked at suitable points, such as bridges, fords, defiles, etc., by a succession of obstacles, and defended by a few dismounted men. When compelled to fall back, these men mount and ride rapidly to the next obstacle in rear and there take up a new position. As the march of cavalry at night is, as a rule, confined to the roads, such tactics seriously delay its advance.

**Q.** How are the men and horses of the independent cavalry on outpost duty cared for?

**A.** In accordance with the situation and the orders they have received, the support commanders arrange for feeding, watering, cooking, resting, and patrolling. During the night, the horses of the outguards remain saddled and bridled. During the daytime cinchas may be loosened, one third at a time. Feeding and watering are done by reliefs. Horses being fed are removed a short distance from the others.

**Q.** As a rule, how long does independent cavalry remain on outpost duty?

**A.** Generally for the night only, the advance being resumed on the following day; if stopped by the enemy, it is drawn off to the flanks upon the approach of its own infantry.

## CHAPTER VI.

### MARCHES, SHELTER, SUPPLY, AND TRANSPORTATION.

#### MARCHES.

**Q.** Why is marching so important from a military point of view?

**A.** Because the march is the foundation of all operations, and upon its proper performance depends the success of all military undertakings.

**Q.** What considerations govern marches executed, first, at a distance from the enemy; second, within striking distance of him?

**A.** In the first case, the comfort and convenience of the men must be promoted by all possible means; in the second, all considerations of comfort must yield to the necessity of securing one's self against unexpected attack, and to that of being constantly in readiness for combat.

**Q.** How should a large force be subdivided for a march?

**A.** Into as many columns as there are roads approximately parallel to the direction of march; these columns should take up as broad a front as possible, provided that they are not too far apart for easy communication, and for ready support one of the other. A division can with ease be formed in one column. In general, the march of a large force in a single column is attended with disadvantages, but in the movement of the vast armies of modern times, it is seldom possible to assign less than one division to one road.

Q. Upon what does the number of columns into which a force is divided for marching depend?

A. Partly upon the number of main roads existing in the zone of march, partly on the distance of the enemy, and partly on the immediate object in view.

Q. How is a march begun?

A. To form the column for a march, the commander issues the necessary orders (march order); if the march is controlled by tactical or strategical considerations, *field orders* are issued; in other cases, *routine orders*.

The march order states the object of the march, gives the distribution of the troops, order of march of the main body, manner of forming the column, etc.

Q. When a command consists of several columns, in what form is the supreme commander's order generally issued?

A. It indicates the march of each column, route and distance, the column commanders issuing additional orders for their columns.

Q. When troops are encamped at some distance from the road, how is the column of march formed?

A. By the successive arrival of the fractions at an *initial* or starting point, which, as a rule, is located in the direction of the proposed march. The commander fixes the initial point after considering the position of the troops and the roads by which they can join the column. He also prescribes the hour at which the leading fraction or fractions *clear* the initial point, and, if necessary, the routes to be followed in reaching it. To prevent needless marching, he



may designate special initial points for parts of the command.

When troops are encamped on or near the line of march, the commander prescribes the hour of starting for the larger units, and subordinate commanders then issue corresponding orders for their commands.

**Q.** On what does the marching formation of troops depend?

**A.** Chiefly on the breadth of the road. A main road may admit of infantry marching eight abreast, and of two carriages side by side. Cavalry and horse artillery should not march on the same road intermingled with infantry, because it is fatiguing to horses to reduce their rate to that of the foot soldier.

**Q.** What controls the order of march of the elements of a column?

**A.** The peculiar conditions under which the march is made, the fundamental principle in all cases being that these elements are arranged from front to rear in the order in which it is likely that they will be most needed. Hence cavalry, as being the most mobile element and the one whose special function it is to give timely notice of the presence of the enemy, should be well advanced to the front. The artillery, which begins the combat, should be so placed as to be able without difficulty to come speedily into action; the engineers should have ample time to remove obstacles and otherwise to further the march of the troops. Lastly, the infantry should be so formed as to assume combat formation with as little delay as possible. Tactical units should, as far as possible, be kept together, and to facilitate the march of large bodies, intervals must be preserved between them.

**Q.** Give the usual order of march (advance) of a

division when near the enemy, the necessary security being provided.

A. *Combatant Troops (with Combat Trains).*

1. Cavalry and horse artillery.
2. Infantry and light or mountain artillery.
3. Engineers and signal troops.

*Trains, etc.*

4. Field trains and the sanitary troops not attached to regiments, etc.
5. Ammunition, supply, and pack trains.

Assuming two squadrons to be on independent cavalry duty, and the advance guard to consist of one squadron, two regiments of infantry, one battalion of artillery, one company of engineers, and a detachment of sanitary troops, the order of march of the remainder of the division *might* be as follows:

2 battalions infantry;  
 1 battalion artillery;  
 1 battalion infantry;  
 Regiment artillery;  
 2 brigades infantry;  
 Artillery combat train;  
 Engineers;  
 Signal troops;  
 Sanitary troops;  
 Field train;  
 Ammunition train;  
 Pack train;  
 Supply train.

Q. What is the length of a division on the march, normal intervals?

A. Combatant troops (with combat trains), about 9 miles;

Trains, etc., about 6 miles.

Q. How may the length of a marching column be approximately calculated?

A. By allowing when the men are marching four abreast, two men per yard for foot troops, one man per yard for cavalry, and twenty yards for each gun, caisson, or wagon when in single column.

Q. At what hour of day should a march begin?

A. When practicable, marches are begun in the morning, ample time being allowed for the men to breakfast, animals to feed, and the wagons or animals to be packed. The time for reveille and stables should be designated the evening before. Canteens are filled, fires put out, latrines covered, and the camp policed before departure.

The hour for the start depends upon circumstances. As a rule, foot troops do not start before broad daylight; mounted troops, when practicable, about an hour after broad daylight. Both men and animals rest well in the early morning hours.

Q. What is the average rate of marching for the three arms, including halts, the world over?

A. For infantry, from  $2\frac{1}{2}$  to  $2\frac{3}{4}$  miles an hour; for field artillery alone, 4; for cavalry and horse artillery, 5. These rates assume that men, horses, and roads are in good condition. Moreover, the size of the column affects the rate; other things being equal, a small body will march faster than a large body.

Q. What is the length of an ordinary day's march of infantry under favorable conditions?

A. From 12 to 15 miles. At the outset of a cam-

*paign, or of a prolonged movement, marches should be, if possible, very short, so as to get the men and horses gradually into condition. It is scarcely necessary to point out that, in any case, the length as well as the rate of a march is influenced by a variety of conditions wholly independent of the character of the troops themselves, such as the weather, the nature of the country, the state of the roads, the facilities of supply, etc. The average march of cavalry, after men and animals are hardened, is 25 miles a day.*

*Q. Is continuous marching possible?*

*A. No; to rest the men and animals, and for other purposes, a command on the march is occasionally halted. The first halt is made after marching about three-quarters of an hour, and is about fifteen minutes long, to enable the men to attend to the calls of nature and to adjust their clothing, etc. Judgment should be exercised in selecting the place for the first halt; it should not be made in a village or place where one of the objects of the halt would be defeated.*

*After the first rest, there is for foot troops a halt of about ten minutes every hour—that is, the troops march fifty minutes and then halt ten. This is not a rigid rule, but is modified according to circumstances. In very hot weather, for example, the halts may be longer and more frequent. The men are allowed to fall out, but remain in the immediate vicinity of their places.*

*For cavalry the hourly halts are shorter—five minutes; the men examine the horses' feet, adjust saddles, etc.*

*For artillery the hourly halts are from five to ten*

minutes; harness is adjusted, girths are tightened, etc.

On prolonged marches a command should be halted at least one day in seven, to recruit the strength of men and animals, make repairs, etc.

Q. What considerations affect the choice of a place for a long halt?

A. The season of the year, and the weather. Shelter must be sought from wind and rain, and, in any case, an ample supply of water must be readily accessible.

Q. How should troops on the march be quartered at night?

A. If possible, in cantonments; that is, under roof. Under certain circumstances a bivouac in the open is unavoidable, but the proverb always holds that a bad cantonment is better than the best bivouac. A roof not only protects from wind and rain, but enables the men to cook and to eat in comfort.

Q. How may the fatigues of a march be greatly lessened?

A. By requiring all the elements of one and the same column to preserve a uniform pace, and by discouraging all double time of men and trotting of horses to recover lost distances. The comfort of the men is also greatly increased by paying assiduous attention to apparently minor details, such as regularity of meals, abundance of water, modification of the march formation according to the weather and the season of the year, the condition of clothing and of foot-gear, and by taking care that each man and horse has a good night's rest.

Q. What is meant by a *forced march*?

A. One in which an extraordinary effort is de-

manded to carry out some particular object. For large bodies of troops, any march greater than 15 miles a day would be a forced march. It is useless to expect troops not thoroughly trained and disciplined to carry out a forced march of any length.

Q. What circumstances alone will justify a forced march?

A. Extreme necessity, as forced marches seriously injure the fighting powers of even the best troops.

Q. Are *night marches* ever necessary?

A. They may be made necessary by the need of exceptional haste, or by the operations of the enemy, or by the excessive heat of the day. Under a full or nearly full moon, troops can march almost as fast as by day; but, even under the most favorable circumstances, night marches are usually fatiguing, and should not be undertaken unless fully justified by the circumstances of the case.

Q. In the *care of troops* on the march, what precautions are taken in regard to eating and drinking?

A. Excess in eating or drinking is avoided. The drinking of water is often a matter of habit; under ordinary conditions, a canteen of water should last one man a day's march. Soldiers should be taught to be economical in the use of water, and to keep a small supply until their canteens can be replenished. If water is plentiful, they may drink often, but only a small quantity at a time. Sources of water supply are examined by experts and marked *good* or *bad*. In countries affected with cholera or other harmful bacteria, this is imperative. Doubtful water is boiled.

Q. What precautions are taken to prevent suffering from hot weather?

A. Halting-places are selected, when practicable, where there is shade and free circulation of air, and the men are cautioned against drinking too much water. Green leaves or a moist handkerchief in the hat affords relief from the hot rays of the sun. If overheated, care is taken to prevent the men becoming chilled by exposure to cold winds or drafts.

Q. How are sick or injured men disposed of on the march?

A. On the march a regiment is followed by an ambulance from the ambulance train; if detached, by three ambulances (48 ambulances to a division). A soldier taken sick on the march is sent with a pass by his company commander to the medical officer in rear; the latter returns the pass, showing the disposition made of the man. If admitted to the ambulance, he takes his rifle and equipments with him. The horse and horse equipments of a cavalryman admitted to the ambulance are returned to his troop.

Q. How is the *police* of a column maintained on the march?

A. A provost guard, under an officer, marches about 100 yards in rear of the combatant troops. Its duty is to arrest stragglers and receive prisoners. If the command is smaller than a brigade, the commander of the rear company or troop details the guard; if the command is a brigade or larger, a provost marshal is appointed and furnished with a suitable force; he has charge of the police of the column, and of the camp after it is established.

Q. How is straggling prevented?

A. No man leaves the ranks without permission; it is the duty of all officers and non-commissioned

officers to prevent straggling. Enlisted men found away from the organizations without authority are arrested, and turned over to the provost guard. Unless instructions are received to the contrary, military prisoners held by the guard are returned to their units at the first opportunity, with a statement of the circumstances of their apprehension.

All persons found pillaging, marauding, or committing crimes are arrested and dealt with according to law.

Q. What are *marches of concentration*?

A. They are marches made for the purpose of assembling at a certain time and place bodies of troops from different localities. Such marches require an accurate computation of the time required for marching, and of the road space occupied by the troops. The condition of the roads, weather, etc., must be considered.

Q. What are *practice marches*, and why are they made?

A. They are marches made by troops as a part of their practical training. The practical training of troops is divided into two phases—namely, *garrison training* and *field training*. Practice marches form a part of field training and are made with two objects in view: (1) that of hardening the men and animals and of keeping them in proper physical condition; (2) that of instructing officers and men in duties incident to a campaign—marching, camping, cooking, etc., and the principles of tactics, including the services of information and security.

Q. How is a practice march conducted?

A. A practice march conforms to the conditions



it is intended to simulate. The troops at times carry the full field equipment.

Q. How much exertion should be exacted of troops on practice marches?

A. It should be borne in mind that practice marches, like all physical exercise or recreation, should *never* be carried to the degree of physical exhaustion, and should, as a rule, stop short of excessive physical fatigue. Men and animals are maintained in better physical condition by moderate daily exercise than by tiresome efforts made at longer intervals.

Q. Why should practice marches not be made under conditions of great heat or cold or excessive wet weather?

A. Because such conditions defeat the very object for which practice marches are made.

Q. Why should practice marches always include practical instruction of some character in field duties?

A. Because they can thus be made of interest to the men and will not be regarded as a needless hardship. Drills and exercise from which the men can see no benefit to be derived are to the intelligent American soldier like digging holes in the ground only to fill them again.

#### *Convoys.*

Q. What is a convoy?

A. A vessel or fleet, or train of vehicles or animals, employed in the transportation of military supplies, and generally having an armed escort.

Q. How are *wagon convoys* organized?

A. As the difficulty of controlling and protecting

a convoy increases rapidly with its length, it should not, as a rule, contain more than 100 wagons. Such a train occupies about one mile of road space.

A staff officer, generally a quartermaster, with such assistants as may be available, is placed in charge of the transportation. He divides the train into sections of 20 to 30 wagons and places a non-commissioned officer or wagon-master in charge of each section. The organization of each section is similar to that of the prescribed *wagon company*.

A police guard of at least one squad is assigned to each section to preserve order, protect property, render assistance in case of accidents, and take part in the defense. With hired or impressed transportation a stronger guard is required.

Q. How do convoys march?

A. A convoy *marches* with a distance of about 25 yards between sections, about 2 yards between wagons, and at a rate of 2 to 2½ miles an hour, including halts. The march is similar to that of a body of troops, except for breathing-spells in ascending long slopes, and delays to lock wheels on steep descents. Long halts are avoided. The slowest teams are placed in the lead. The field train of the escort marches as a part of the convoy train.

The senior line officer on duty with the troops commands the convoy. He consults with the officer in charge of the transportation, and, if practicable, defers to the latter's wishes as to the hours of starting, length of marches, etc.

Q. How does the escort march?

A. With an advance guard, main body, flank guard (if necessary), and rear guard. The *advance*

*cavalry* precedes the train 3 to 5 miles, and scouts to the front and flanks. The remainder of the advance guard marches about 1 mile in front of the train. The main body marches at the head, opposite the center, or in rear, according to the situation. It may be divided. The rear guard marches a short distance in rear of the train.

Q. How is a convoy encamped?

A. On going into camp or during long halts, the train is parked, the formation depending upon the proximity and character of the enemy and the amount of ground available. For defense the wagons may be placed in two lines facing each other, or in the form of a square, rectangle, oval, or circle, the poles inside; the inclosure thus formed furnishes shelter for the men and animals. When there is time, wire entanglements are constructed and shelter-trenches dug outside the corral. The escort furnishes the necessary security.

### SHELTER.

Q. How are troops sheltered when in the field?

A. In time of peace, they are generally sheltered under canvas, tents being put up after each day's march. In permanent camps, like those of mobilization, the tents may be replaced by temporary barracks.

In time of war, troops in the field are sheltered under canvas, in buildings, or in huts specially erected.

Q. State what is meant by troops being in camp, in bivouac, or in cantonment?

A. Troops are in camp when they are sheltered under canvas; in bivouac when resting on the ground

without shelter; and in cantonment when they occupy buildings in towns or villages, or huts erected for the purpose.

Q. What is meant by billeting troops?

A. Assigning them to public or private buildings for quarters. Our troops may be billeted in enemy territory, but not in our own country.

Q. What is the character of the tentage used by troops in the field?

A. The allowance of tentage is regulated in orders from the War Department. In permanent camps the men are generally sheltered in conical wall or equivalent tents at the rate of eight or ten to a tent. Wall tents are provided for officers, storage tents for quartermaster and commissary supplies, and hospital tents for the hospitals. *In campaign*, the tentage is reduced to actual necessities, depending upon the nature of the operations and amount of available transportation. As a rule, the men are provided with shelter tents\* only, the officers with wall tents or shelter tents; the field hospitals provide tents for the sick.

On practice marches and at maneuvers, the character of the shelter depends upon the conditions which the exercises are intended to simulate, and is regulated by the commander.

Q. What rule is followed in selecting camp sites for troops?

A. Consistent with the tactical requirements, sanitary considerations are given all the weight possible.

Q. When practicable, what conditions govern in the selection of camp sites?

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\*Experiments are now being made with a "tent cape" with a view to its replacing the shelter tent.

A. 1. The ground should accommodate the command without crowding, be easily drained, and have no stagnant water within 300 yards.

2. The water supply should be abundant, pure, and easily accessible.

3. There should be good roads to the camp and good interior communication. On account of dust and noise, it is not desirable to place a camp on or near a main road.

4. Wood, grass, forage, and supplies must be at hand or easily obtainable.

Q. Why are forms of camps prescribed in regulations?

A. Forms of camps are prescribed to facilitate the prompt encampment of troops after a march, prevent confusion, and secure proper camp sanitation. These forms, however, must often be modified, depending upon the military situation and the nature of the ground where the camp is located.

Q. When practicable, how do battalion units encamp?

A. When practicable, battalions and squadrons usually camp in *column of company units*. This is the normal formation, changes being made by the commander as circumstances require. (For forms of camps, see the Field Service Regulations.)

Q. How are camps established when troops are on the march, and how is the camping-ground selected?

A. Camp is established pursuant to the *halt order*. This order provides for the outpost, if necessary, and gives instructions for the encampment of

the main body. When practicable, large commands are encamped by brigades.

The camping-ground may be selected by the supreme commander, but in large commands is generally chosen by a staff officer sent forward for that purpose. This officer, with a representation from each regiment and a medical officer, precedes the command by three or four hours, selects the camping-ground, assigns *sections* thereof to the larger fractions of the command, and causes them to be conducted to their respective sections on arrival. He also designates the place for obtaining drinking and cooking water, for watering animals, for bathing, and for washing clothing, in the order named from up stream down.

Q. In camp, what precaution is taken in regard to how the men sleep?

A. Men should not lie on damp ground. In temporary camps and in bivouac, they raise their beds if suitable material, such as straw, leaves, or boughs, can be obtained, or use their ponchos or slickers. In cold weather, and when fuel is plentiful, the ground may be warmed by fires, the men making their beds after raking away the ashes. In permanent camps, cots or bunks are provided.

Q. What care is taken in regard to the water supply?

A. The water supply is carefully guarded. When several commands are encamped along the same stream, this matter is regulated by the senior officer.

If the stream is small, the water supply may be increased by building dams. Small springs may be dug out and lined with stone, brick, or empty barrels. Surface drainage is kept off by a curb of clay.

When there is doubt as to the purity of the water, it is boiled twenty minutes, then cooled and aerated. A company requires at least two barrels of drinking water daily.

Q. How are troops sheltered during battle?

A. For manifest reasons, troops in battle generally bivouac when hostilities are suspended for the night. However, there are occasions when the shelter tents may be used.

### SUPPLY.

Q. In what two general ways may an army be subsisted in war?

A. First, the army may live upon the country, supplies being obtained by requisition or by purchase, or by both; second, the army may be subsisted by stores, etc., pushed forward from the rear. In practice, both of these methods are usually followed.

Q. What are requisitions?

A. They are supplies of food, or of whatever may be necessary for the command, levied upon the inhabitants by an army invading hostile territory. The commander specifies in orders the kinds of supplies required and the prices to be paid. If the inhabitants do not voluntarily bring in what is called for, detachments may be sent out to collect the same. This is called *foraging*. Requisitions are paid for in cash, or receipts are given and subsequently redeemed.

Q. What are contributions?

A. They are levies of money made under some general law or rule of assessment. Contributions are generally collected by the local authorities on orders from the commander of the invading army. They

are not refunded, but are considered as a tax upon the country.

Q. What is looting or pillage?

A. The unauthorized seizure of property by the members of an invading army. It is a crime against the laws of war for which offenders are severely punished.

Q. Into what two branches is the subject of supplying modern armies from the rear divided?

A. Into, first, the forwarding of stores, rations, forage, etc., and their collection in magazines and depots; and, second, the distribution of these stores from these magazines to the army itself. These two services are, or ought to be, perfectly distinct.

The *first* is the service of the line of communications. By it supplies are forwarded from the base of operations to *supply depots at the front* (see sketch of line of communications), and there turned over to the division supply officers. As the army advances supply depots are established from time to time, so that stores can be turned over to the field and supply trains.

The *second* is the service of supply within the army itself, and is accomplished by means of the field, supply and pack trains. These trains form the connecting links between the troops and the supply stations at the head of the line of communications. The field trains usually carry two or three days' rations and forage for the command; the supply trains, three.

Q. What are field trains?

A. Trains formed from those wagons which are assigned to organizations and which carry the baggage, tentage, at least 2 days' rations, 8 of forage,



and sometimes extra ammunition for the command.

Q. What are supply trains?

A. Each division has a supply train which carries a *reserve supply* of rations and forage for three days. It also carries a reserve of sanitary stores. Supplies are not drawn from the supply train so long as they can be obtained from the country or from the supply depots.

Q. How are rations carried in campaign?

A. 1. In the field trains, at least two haversack rations for each man.

2. In the supply trains, three haversack rations.

3. By each man, one emergency and one haversack ration; in addition, when combat is probable, or the troops are liable to be separated from their field trains, each man starts with one additional haversack ration.

Q. What additional articles does an infantryman carry in campaign?

A. His rifle, ammunition, blanket-roll, haversack, canteen, and an intrenching tool.

Q. What is his surplus kit, and where is it carried?

A. Additional articles of clothing, carried in the company wagon (field train).

Q. How are rations prepared for use in the field?

A. Generally, for companies, on a field stove or range, though it may be necessary to form messes of squads, or even to require individuals to do their own cooking.

In campaign, officers of company units generally mess with their organizations; battalion officers mess with their companies or provide a battalion mess; a

regimental commander and his staff form one mess, or the officers may mess with the band or other organizations.

Q. What departments furnish supplies for the army?

A. The Quartermaster's Department supplies clothing, fuel, forage, camp and garrison equipage, and shelter for men and animals; the Subsistence Department supplies subsistence and the means of preparing it for use; the Ordnance Department furnishes arms, ammunition, and certain equipments; the Medical Department furnishes sanitary supplies.

Q. What is the forage ration?

A. 14 pounds of hay and 12 pounds of oats, corn, or barley for horses, and 14 pounds of hay and 9 pounds of oats, corn, or barley for mules. To each animal 3 pounds of bran may be issued in lieu of that quantity of grain.

Q. How is forage obtained in campaign?

A. By requisition and purchase and by shipment from the base. The resources of the country are utilized to the fullest extent possible.

Q. How is forage carried?

A. In the field and supply trains. Grain is usually the only forage carried on the march. In the cavalry, a small reserve of grain (about 6 pounds) is carried on each horse. In the artillery, a small quantity of grain is generally carried on the carriages.

Q. How is ammunition furnished troops in campaign?

A. By shipments from the base to the advance supply depots, where it is turned over to the ammunition trains, and sometimes to the combat trains.

**Q.** How much ammunition is considered necessary at the outset of a campaign?

**A.** To replace ammunition used in combat, an amount not less than that carried by the mobile forces is kept at or near the advance supply depot, and an additional amount approximately equal to all ammunition in advance of the base is held at the base of operations. This distribution in rounds is shown in the following table:

*Ammunition Supply for a Field Army.*

Location.	Per Rifle.	For each Machine Gun.	For each Light Field Gun.	For each Howitzer and Heavy Field Gun.
With the mobile forces. .	.330	17,500	464	232
At or near the advance supply depot. .	.330	17,500	464	232
At the base. .	660	35,000	928	464
Total in the theater of war. . . .	.1,220,	70,000	1,856	928

**Q.** How is the rifle ammunition of an infantry division carried and distributed?

**A.** In the belt of each foot soldier 90 rounds (it is contemplated increasing this to 100); in the combat trains 120 rounds (2 bandoliers) per rifle; in the ammunition train 120 rounds per rifle plus a reserve for machine guns. Cavalrymen carry 80 rounds of rifle and 20 of revolver ammunition. The belts of the men are replenished from the combat trains; the latter draw from the ammunition train.

**Q.** What precautions are taken to keep the men on the firing line supplied with ammunition?

**A.** In campaign, all officers and noncommissioned officers endeavor to keep the belts of their men filled with ammunition. Not only must advantage be taken of every opportunity to replenish the supply, but prospective expenditures must be anticipated by issuing ammunition in advance. As troops go into combat it may be advisable to issue to each man one or two bandoliers of ammunition from the combat train. If additional ammunition is needed during combat, the lead mules of the battalion ammunition wagons may be converted into pack mules and ammunition delivered to the firing line in that manner. If this is impracticable, small squads of men under noncommissioned officers may be detailed to carry ammunition to special parts of the firing line, or reinforcements may be given extra ammunition for that purpose. If available, the division pack train is used to carry ammunition to ground impracticable for wagons, or whenever it may be urgently needed.

Every lull in the fight must be utilized to renew the supply, and to equalize the same in each company. The contents of the belts of the dead and wounded are distributed whenever practicable, though the latter must not be left wholly without means of self-defense. *In no case are men sent to the rear for ammunition if it can be obtained in any other manner.* When ammunition is running low, officers caution the men to reserve a few rounds each for emergencies.

The morning following an engagement should find the firing line and all ammunition wagons replenished.

On the defensive, especially in prepared positions, extra ammunition may be placed on the firing line.

**Q.** How is artillery ammunition replenished?

**A.** When the battery goes into action each piece is supplied from its own caisson. With the firing battery are two additional caissons, from which the gun caissons are replenished. This replenishment is ordinarily effected by the cannoneers during lulls in the action.

The ammunition in the gun limbers is kept intact as a last reserve, and whenever used is replaced as soon as practicable.

Caissons from the reserve (combat train) replace empty caissons of the firing battery. Empty caissons are either refilled from the limbers of the reserve caissons or sent to the ammunition train to be refilled. If necessary, wagons or caissons from the ammunition train may be sent direct to the firing battery.

**Q.** How is ammunition for a cavalry division carried and distributed?

**A.** The ammunition for a cavalry division is carried, distributed, and replaced substantially as in the case of infantry, the cavalymen carrying 80 rounds of rifle and 20 rounds of revolver ammunition in the belt, and, when combat is imminent, 60 rounds of rifle and 20 rounds of revolver ammunition in the saddlebags.

Combat trains of cavalry acting independently generally march with the horse artillery, if any; otherwise in rear of their squadrons or regiments or with the ammunition train.

As cavalry in campaign is liable to be separated from its combat and ammunition trains, it is authorized, in such emergencies, to draw from the most available ammunition wagons or source of supply. The use of pack animals is often necessary.

### TRANSPORTATION.

Q. What department is charged with the transportation of military supplies?

A. The Quartermaster's Department. In war, the Medical Department generally controls the transportation provided for its use and for the care of the sick and wounded.

Q. In supplying an enemy in the field, what transportation is used?

A. To supply an army in the field, advantage is taken of the most available means of transportation. To the base of operations and from the base to the supply depots at the head of the line of communications, the means of transportation generally consists of rail or water service or of both; from the supply depots to and within the army itself, supplies are transported by wagons or other vehicles, and by pack animals.

Q. Into what trains is the wagon transportation accompanying mobile troops divided?

A. Into field, combat, ammunition, and supply trains.

Q. What are *field* and *supply* trains?

A. See page 166.

Q. What are *combat* trains?

A. Combat trains consist mainly of those wagons

(ammunition wagons) or vehicles assigned, ordinarily, to battalions and squadrons for the purpose of supplying troops with extra ammunition, intrenching tools, etc., needed in actual combat. In addition to ammunition and intrenching tools, the ammunition wagons carry the company litters, three days' forage for the animals, and pack outfits to enable the lead mules to be converted into pack mules.

Q. What are the combat trains of the engineer and signal troops?

A. They consist of those wagons or vehicles that carry the material for the special work of those troops.

Q. What are *ammunition trains*?

A. The great expenditure of ammunition possible with magazine rifles and quick-firing field artillery renders arrangements for its timely renewal of vital importance. Under modern conditions a *reserve* of 120 cartridges for each rifle, about 10,000 for each machine gun, and 100 rounds for each field gun of a division should be carried, necessitating approximately 8 ammunition wagons for each regiment of infantry and cavalry, and 1 wagon or caisson for each gun. These vehicles together with additional wagons for rations, forage, etc., are organized into wagon companies and constitute the ammunition train of a division. Ammunition trains are usually commanded by artillery officers.

Q. What is a wagon company?

A. It consists of 27 army wagons with the necessary teams and *personnel*.

Q. What is the normal load of an army wagon?

A. 3,000 pounds.

Q. Where is the use of pack trains valuable?

A. Troops operating in country impassable for the ordinary vehicle are supplied by means of pack trains. These trains are also valuable adjuncts to wheel transportation during combat and in the rapid operations of cavalry.

Q. What is the average load for a pack mule?

A. The average load of a pack mule is 250 pounds, and a train thus loaded can easily travel from 20 to 25 miles a day on ordinary roads or trails; in rough country from 10 to 15 miles. For shorter marches the load may be increased to 300 pounds or even 350 pounds per animal. On forced marches the load should not exceed 200 pounds.

Q. How is the transportation of troops and supplies effected by *rail*?

A. By the Quartermaster's Department in conformity with Army Regulations and orders from competent authority. Such orders are issued in ample time, and when issued for the transportation of troops, give an exact return of the command, so that proper and sufficient transportation may be in readiness. Transportation should be provided at the rate of 3 men to each section in tourist sleepers and 2 men to each seat in day coaches.

Q. What sized trains are desirable in the transportation of troops by rail?

A. As it is preferable to have trains of moderate size with good speed rather than long trains with low speed, the maximum to be assigned to one train is generally as follows;



- 1 battalion of infantry, or
- 2 troops of cavalry, or
- 1 battery of artillery, or
- 1 company of engineers with bridge train.

Q. How are the trains usually made up?

A. Trains are usually made up in the following order:

1. The flat cars with artillery carriages, pontons, wagons, etc., and ambulances from front to rear.
2. Box cars with property.
3. Stock cars.
4. Box cars with forage.
5. Baggage cars.
6. Kitchen car with rations.
7. Coaches or tourist sleepers for the men.
8. Sleeper for officers.

If it is necessary to divide a train, some officers and men accompany each section. The troops should not be separated from the animals if it can be avoided; but if the animals are shipped in separate trains, selected detachments under officers accompany them, and such trains precede the troops.

Q. What precautions are taken in transporting troops by rail?

A. All movements of the troops in loading, entraining and detraining, feeding and watering, and exercising men and horses are made, as far as practicable, in military formation and pursuant to command, thus avoiding confusion and gaining time.

Q. How are troops transported by *water*?

A. Transportation of troops, etc., on *inland waters* is comparatively limited, and is generally the subject of special arrangements with steamboat companies.

At *sea*, transportation is effected by the Army Transport Service, a special branch of the Quartermaster's Department.

The necessary preliminaries before embarking and the routine details on board army transports are prescribed in the Army Transport Service Regulations.

## CHAPTER VII.

### COMBAT.

#### THE OFFENSIVE.

Q. Why is the offensive assumed in combat whenever possible?

A. Because only by the offensive can decisive results be obtained. Even the defensive must take the offensive if it wishes to profit to the utmost by the repulse of the enemy.

Q. How is the question of the defensive or of the offensive usually decided?

A. Generally by circumstances as they develop. The choice sometimes lies in the commander, who must then carefully weigh all questions of terrain, morale, relative numbers, characteristics of the enemy, etc.

Q. What is the object of an attack?

A. The forcible expulsion of the enemy from his position. As fire-action alone can seldom accomplish this, the offensive implies an advance against the enemy's position and the delivery of a shock (charge) at the end of the fire-action.

Q. What is the first duty of a commander who has decided to make an attack?

A. To ascertain the strength and position of the enemy, and then to form the *plan of attack*.

Q. What is meant by the term "plan of attack or battle"?

A. When an army comes in contact with the enemy, and the strategical operations are about to culminate in a tactical decision, its commander must first decide whether to attack or to stand on the defensive. If the decision be in favor of the offensive, he must next determine whether to attack the enemy in front, to combine front and flank attacks, or to attempt to pierce some point of the hostile line. Having settled upon the method of attack, he must next decide upon the points of the opposing line upon which the attack should fall. These matters determined, he must provide for the combination of the several arms so as to obtain their most efficient mutual support and concentrated action, and make the best use of the terrain. These decisions and arrangements constitute the plan of attack or battle.

Q. Why, as a rule, should a frontal attack alone not be made?

A. Because it is the least decisive mode of assailing the enemy. If successful, it merely drives him back on his base, thus resulting in a barren victory. It may, however, be necessary; for example, when the enemy's flanks rest on impassable objects. To be successful, it must in any case be made with a force greatly superior in numbers and morale; for the increased range and power of fire-arms has made front attacks so costly that without this superiority they are all but certain to fail.

Q. Why are flank attacks necessary, and with what are they usually combined?

A. Since frontal attacks are rarely decisive and generally impracticable, some other mode of overthrowing the enemy must be sought, and the one gen-

erally adopted is the combination of front and of flank.

Q. What advantages are gained by a flank attack?

A. If the attack is of the nature of a surprise, the moral effect of flank fire is very great, and a small force may drive a much larger one from a position impregnable to assaults from the front.

Q. Why is a combination of front and of flank attacks necessary?

A. If a front attack alone is made, it is likely to fail; if a flank attack alone, the enemy can meet it by a change of front. A front attack is necessary, while the real or decisive attack is proceeding on the flank.

Q. In what two ways may a flank attack be made?

A. Either by extending the front so as to overlap the enemy's line on one flank, and then wheeling in on the flank to be attacked, or by making a turning movement.

Q. Define a turning movement, and state what conditions are necessary to its success.

A. A turning movement is one made by detaching a force to make a *détour* and to fall on the enemy's flank. To be successful, it must be made out of the sight and beyond the range of the enemy.

Q. When should the troops for a flank attack be concentrated on the flank to be attacked?

A. This must generally be done after the enemy's attention is occupied by the front attack. The more earnestly the latter is pressed, the greater the likelihood of diverting the enemy's attention from the flank attack.

Q. Why should a simultaneous attack on both flanks be avoided?

A. Because ordinarily this would so weaken the center as to expose it dangerously to counter-attack.

Q. What is the effect of piercing the enemy's front?

A. An attack piercing the enemy's front is more decisive than any other, for it generally results in cutting off a part of the hostile army from its base, and causing either surrender or annihilation. Such a method of attack is, however, rarely practiced to-day.

Q. What is meant by the "order of battle"?

A. The relative tactical positions of the opposing forces in preparations for battle, or during the encounter.

Q. What are the three orders of battle, and how does each come into existence?

A. First, the parallel, when the attack is made along the whole line; then, the concave, when an attempt is made to turn both flanks of the enemy; lastly, the convex, when the attempt is made to pierce the front.

Q. State the advantages and the disadvantages of the various orders of battle.

A. The parallel rarely yields decisive results, and is not adopted except from necessity. The concave order opposes a converging to a diverging fire, but, unless it completely encloses the enemy, one or both flanks are dangerously exposed to counter-attack; if, however, too great an expansion is made, the center is liable to be pierced by the enemy. The concave is

usually preferable to the convex order, and indeed some variety of the concave order is usually chosen. Sometimes the convex disposition is forced on a commanding general by the necessities of the case, as in the passage of a river, when troops are pushed forward to cover the passage, and the other troops afterward take position on the flanks of these. In the convex order the fire of the troops is divergent, and the enemy's fire on one wing may take the other in reserve; if the center of the line is pierced, both wings are taken in flank.

In general, any offensive plan is faulty that does not contemplate the turning of a flank.

**Q.** How is the choice of the point of attack determined?

**A.** By tactical considerations, if the sole object of the attack is to gain a victory and the possession of the field; by strategical considerations, if the object is to gain the greatest results from the battle. For examples of strategical considerations, if an army is connected by one flank with its base, attack that flank, so as to cut the enemy from his base, and therefore from supports and succor. Or, if an army is connected by its flank with a fort, attack that flank; if the line of retreat lies obliquely in rear of one wing, that wing should be the point of attack, for, in case of success, the enemy is cut off from his line of retreat.

**Q.** Give some examples of tactical considerations in choosing the point of attack.

**A.** The enemy's advanced posts should be captured, unless so far apart that the attack can be made between them. If the advanced posts are strong and

close together, they must be captured. If a strongly fortified position lies in the line of battle, the attack should bear on points more easily carried, and from which the fortified posts or position can be assailed in rear. When one of the hostile flanks rests on an impassable obstacle, the other extremity of the wing so situated forms a tempting point of attack, for, if the front is pierced, the troops so cut off may be thrown back on the obstacle, and either destroyed or captured.

Q. Can definite rules be laid down as to the manner in which attacks should be made?

A. No; for the reason that no two situations are ever the same. Therefore to lay down fixed rules, or to prescribe what are called *normal formations*, might be fatal and lead commanders to fight according to plans not deduced from the actual conditions. Nevertheless *successful* attacks, especially with large forces, do present certain phases and may be said to follow a general plan.

Q. What is this plan?

A. 1. To attack the enemy vigorously with troops enough to compel him to take up a defensive position, and there to inflict losses, force him to bring up his reserves and to disclose the weak points of his line; at the same time to withhold the remaining troops under cover, a part for a general reserve and the rest for a powerful effort at the decisive point, keeping the enemy in doubt as to where the decisive blow is to fall. This is the *preparatory stage*.

2. To make a powerful effort at the decisive point with the forces withheld for that purpose. This is the *decisive action* or main attack.



3. To employ the general reserve to complete the action and, with all available troops, to make a vigorous pursuit, or to avert disaster in case of failure. This is the *final stage*.

Q. After the commander has fully decided upon the plan of attack, what is the next step?

A. At the proper time he issues the *attack order*.

Q. State briefly what this order contains.

A. It designates the troops that are to take part during the preparatory stage, those that are to make the main attack, those that are to form the general reserve, and gives them the necessary instructions. It also prescribes, so far as practicable or necessary at this time, the duties of the engineer, signal, and sanitary troops, and of the trains.

Q. Is it always possible to issue a complete attack order before beginning a combat?

A. No; but to secure coöperation it should be as complete as possible. In unexpected encounters orders are issued as the situation develops. (See form of order.)

Q. By what operations are combats generally preceded?

A. Combats are generally preceded by those operations that enable a commander to locate the enemy's main body and gain some advantage of position. These preliminaries begin with the action of the independent cavalry, or other reconnaissance, and culminate in the contact of the advance guards.

Q. In fire combats, what does the commander endeavor to secure?

A. A superiority of fire over that of the enemy.

Q. How is a superiority of fire obtained?

A. As conditions are never the same, no fixed rules for attaining a superiority of fire can be laid down beyond the necessity of securing the greatest volume of effective fire possible. This is of great importance, for it is certain that an advance against even an inferior force has little prospect of success without the preparation and assistance of superior fire. Therefore it may be laid down as a general rule that superiority of fire can be obtained only by concentrating a superior force at decisive points within effective range.\*

Q. Upon what does the efficacy of rifle fire depend?

A. The efficacy of fire depends mainly upon its accuracy, its direction with reference to the objective (frontal, oblique, enfilade, etc.), and its volume. Accuracy of fire is influenced by many considerations, such as the nature of the ground, the weather, physical condition of the soldier, skill in estimating or measuring ranges, ability to observe the effect of fire, etc., but chiefly by the character of *fire discipline* in the command. The direction of fire depends upon the skillful placing of the troops. The volume depends upon the number of rifles or pieces in action, and the rapidity with which they are fired. The rapidity, however, should not exceed certain limits. Beyond these

\*The following table gives a classification of the ranges of the different arms.

Range.	Rifle. Yards.	Field Art. Yards.	Heavy Art. Yards.
Distant.. . . .	Over 2000	Over 4500	Over 6500
Long.. . . .	2000 to 1200	4500 to 3500	6000 to 4000
Effective.. . . .	1200 to 600	3500 to 2500	4000 to 2500
Decisive.. . . .	Under 600	Under 2500	Under 2500

limits the accuracy (and therefore the efficacy) of the fire is diminished.

Q. Give reasons why a reserve should always be provided.

A. A reserve is necessary to give a vigorous blow at a timely moment, either to clinch a success or to check an advantage gained by the enemy. This reserve varies in strength; it may often be one-fourth of the whole; it must always be used at exactly the right moment. If put in too soon, it will not be available for the moment of exhaustion found in every battle when the victory will go to that combatant who first can resume the offensive; if put in too late, there may be nothing left for it but to cover the retreat that might have been prevented by its timely use.

## INFANTRY IN ATTACK.

### *General Principles.*

Q. How is infantry generally formed when making an attack?

A. Into a firing line, supports, and reserves.

Q. What are the firing line and its supports called?

A. The *attacking line*.

Q. What is the duty of the supports?

A. To replace losses in the firing line. They follow this line at such distance and in such formation as to insure its prompt reinforcement at a minimum loss to themselves. When practicable, each company should provide its own support in order to maintain the integrity of tactical units.

**Q.** What should the front of the firing line of a battalion be equal to?

**A.** It should be equal to the front of the battalion in close order. The extreme firing front of a battalion in a regiment should not exceed one and a half times the front of the battalion in close order. In general the maximum front is regulated by the necessity of control by the battalion commander; the minimum, by the requirement that each man must have room enough to use his rifle with effect.

**Q.** What is the general conduct of the reserve?

**A.** It follows the attacking line so long as cover can be found. A second line is then formed and sent forward to protect the flanks of the attacking line, and to join in the final assault. The remainder of the reserve follows to assist in repulsing an offensive return, or to complete the rout of the enemy.

**Q.** How have the functions of the skirmish or firing line changed, what difficulty has arisen in consequence, and what measures have to be taken to correct it?

**A.** The skirmish line, formerly used to feel and to develop the enemy or to cover a deployment, has now become the most important element, not only beginning the action, but carrying it on to the end. As skirmishers are harder to control than the same number of men would be if in close order, there has resulted an increased difficulty of command joined to a tendency on the part of the men to get out of hand and to waste their ammunition. These difficulties are remedied in a certain degree by a subdivision of the company into squads, by stringent discipline, and by careful instruction in fire discipline.

**Q.** Define fire discipline, and give the five rules required by it.

**A.** Fire discipline is the instinctive habit, developed in the men by instruction and training, of commencing or ceasing or relaxing the fire, or of concentrating it upon a defined object, all in obedience to the will of the commander. Hence the following rules:

Never fire except when ordered, and then only the number of cartridges indicated.

Never fire after the command or signal "Cease firing."

Never fire except at the named objective.

Never fail to adjust the sight at the range named.

Always aim at the feet of the enemy.

**Q.** Is the observance of these simple rules easy in action?

**A.** No; for in the excitement of battle the men become so absorbed in the act of firing that they perform the motions automatically rather than intelligently, and seem to be actuated by a desire to fire rapidly rather than with effect.

**Q.** Why is long-range fire generally to be deprecated?

**A.** Because it might lead to exhaustion of ammunition before reaching the most effective ranges.

**Q.** When may long-range fire be forced on an assailant?

**A.** When the enemy uses it with effect, under which circumstances troops become demoralized unless allowed to return it. It should stop, though, when the reasons for its employment have ceased to exist.

Q. When long-range fire is used by the assailant, what troops should be charged with replying to it, and what target should these troops select?

A. Troops in close order, firing against masses of the enemy if possible.

Q. How close should the attacking infantry advance before opening fire, and how close can it usually advance?

A. If possible, the attacking infantry should advance to within 500 yards of the enemy before opening fire. It is rarely the case, however, that infantry can get up to 700—800 yards without being compelled to open fire. This latter limit it ought to reach, though, if its morale is good and it is *well supported* by its own artillery.

Q. How must the attacking infantry obtain protection at the longer ranges?

A. From its own artillery, which is expected to keep down the hostile artillery fire, and in any case to divert it from the advancing infantry.

Q. State why volley firing is desirable, the objections to it, when it is possible, and what should be done when the men are disconcerted.

A. Volley firing is desirable, because the men are more easily kept in hand, the expenditure of ammunition is more easily regulated, the objective of fire can be changed at any moment, and the effect on the enemy is more demoralizing than that of fire at will. On the other hand, the leader is not sure that each man has finished aiming, and the quick command to fire is calculated to cause an impulsive pull of the trigger and so derange the aim. At very close quarters independent fire is more advantageous.

Volley firing is possible only when the men are cool enough to understand and obey orders. When it is noticed that the men are disconcerted, and are firing ragged volleys, the fire at will should be ordered.

**Q.** What must be the state of discipline if good results are to flow from volley firing?

**A.** The men must be so trained as to fire only the number of cartridges indicated, and will, if the number be not indicated, cease firing on hearing the signal to that effect.

**Q.** When should rapid fire begin, and what should then be done?

**A.** Rapid fire should, if possible, be postponed until just before the final assault. At this point bayonets should be fixed, and as intense a fire as possible be directed straight to the front.

**Q.** How is protection from the enemy's fire to be sought at the shorter ranges, and what conditions must cover fulfill?

**A.** Protection must be sought in the use of natural cover, such as ditches, trees, folds of the ground, etc.; if there be no natural cover, the men must lie down. In all cases the cover chosen must be such that the men sheltered by it can see the enemy, and have an effective fire on him.

**Q.** In regard to cover, what two things should the men be taught?

**A.** Not only to take advantage of it, but to leave it on an order to that effect.

**Q.** Why are the rushes made, what regulates their distance, and how are they made?

**A.** Whenever the enemy's fire permits, the advance should be uninterrupted. But on arriving well

within effective range of the hostile position, the fire is so hot that even if the remaining space were passed over in double time, the men would be swept out of existence. Even if they were not, they would be so winded that they could not engage in the hand-to-hand conflict. The space is therefore covered by the succession of rushes or bounds. These give the men an opportunity to recover their wind, to protect themselves by such cover as may be available, and to diminish the effects of the hostile fire by the intensity of their own. Generally the length of a rush should be from 30 to 50 yards, and it may be made either by the entire line or by a fraction of it. The latter is the better method, as the advance of a fraction is covered by the fire of its neighbors.

Q. At the opening of the fight what proportion of the men forming the infantry attack should be in the firing line?

A. Generally about one-fourth. The rifle is most effectively handled when the skirmish line consists of one man to each yard of front.

Q. Why should great care be taken to give the proper direction to the firing line when it first moves to the attack?

A. Because a change of direction under a heavy fire is always difficult and often impossible.

Q. The firing line is essentially what?

A. Essentially the fighting part of the army; the other parts of the infantry are merely to repair its losses, protect its flanks, and reinforce it when necessary.

Q. Why and how are scouts used in the infantry attack?



A. Almost invariably the ground over which the attack advances is broken, and contains features that are either shelters or obstacles. Scouts are therefore sent out to the front to make a rapid reconnaissance and to signal information to the troops in rear. They are sent out usually as soon as the troops arrive within the zone of artillery fire, preceding the skirmishers by 150 yards, more or less, and uniting with the firing line when it comes to within 800 yards of the enemy.

Q. What is the two-fold object of the support?

A. To protect the flanks of the firing line, if on the flank of the general line, and to guard against the enemy breaking through any gaps that may exist in the firing line. These matters, though, are secondary, the paramount function of the support being to reinforce the firing line.

Q. By what considerations is the strength of the support affected?

A. Its strength depends on the degree of cover afforded by the ground over which the advance is made. Hence in open ground the support should be stronger than in ground offering shelter to the attack. At the beginning of the advance the support should be equal to at least one-third of the firing line; in general the two are of the same strength.

Q. What is usually the distance of the support from the firing line at the beginning of the attack?

A. About 200 yards. This distance is not invariable, being affected by circumstances of terrain and of fire. For example, it is greater on open ground than on ground affording shelter. No matter what the nature of the ground may be, the support should always be near enough to reinforce the firing line promptly; and, on the other hand, must, if

possible, be far enough back to escape serious loss.

**Q.** How is the firing line reinforced from the support?

**A.** The best method is to send forward squads rather than single men, which should, as far as possible, fill the gaps of the firing line. But this method is not always practicable, and then the only thing to be done is to send forward individual men to find places as best they can.

**Q.** Why is the choice of the time to reinforce the firing line a matter of the greatest importance?

**A.** If delayed too long, the men will rush forward singly or in small squads, and the support will, without orders, melt away into the firing line. On the other hand, reinforcement should be delayed as long as possible, as the moral effect is greater in the later than in the earlier stages of the fight.

**Q.** How should the reserve be formed, and where held relatively to the troops in front?

**A.** As long as possible, in column; and held in rear of the center or of the most exposed flank.

**Q.** When is the second line generally formed?

**A.** When cover for the whole reserve can no longer be found.

**Q.** How should the distance of the second line from the firing line compare with that of the firing line from the enemy?

**A.** It should always be less; otherwise the enemy might overwhelm the firing line before the second line could get up.

**Q.** What should be the strength of the reserve as compared with the firing line and support, and what should the strength always be at the beginning of the fight?

A. At the beginning the reserve should be equal to the firing line and support combined. As a rule, it is equal to all in front of it.

Q. Give the general rules to be observed in conducting an infantry attack.

A. (a) When the firing line is in action within effective rifle range of the enemy, employ in that line as many men as can use their rifles with the best effect.

(b) Regulate the fire from the beginning so that a superiority may be maintained over that of the enemy.

(c) Guard carefully against an exhaustion of ammunition.

(d) Avoid a premature reinforcement of the firing line, in order that you may have men at hand to sustain it when the moral effect of reinforcement is greatest.

(e) Endeavor to prevent your men from being influenced by any panic or demoralization that may seize upon troops supported by them.

(f) Keep all your troops except the firing line in column until considerations of fire-action or protection from the enemy's fire demand deployment.

(g) Always endeavor to have in reserve a body of formed troops for the moment when your attacking force is disordered by its own success or driven back in defeat; but do not keep large bodies out of action for this purpose.

## CAVALRY IN ATTACK.

### *General Principles.*

Q. What methods of fighting are possessed by cavalry?

Cavalry possesses the following methods of fighting:

1. *The mounted charge*, alone or supported by artillery or dismounted fire-action, or by both.
2. *Dismounted fire-action*, offensive or defensive, alone or in combination with artillery.
3. *Mounted fire-action*, in exceptional cases.

**Q.** How does the tactics of cavalry compare with that of any other arm?

**A.** It is more varied than that of any other arm. It embraces shock-action in line and in column; fire-action mounted and on foot; a combination of fire- and shock-action either mounted or dismounted; and the simultaneous use of fire-action dismounted and shock-action mounted by different parts of the same command. The arms, training, and tactical formations of modern cavalry adapt it to use on varied ground, and in every phase of the battle, and sustain General Kilpatrick's apothegm, that "cavalry can fight anywhere except at sea."

If conditions are favorable, dismounted fire-action should be combined with the mounted charge, thus uniting the shock-action of cavalry with the fire of infantry.

**Q.** State the different circumstances under which cavalry may be used with effect in charging infantry.

**A.** (a) When the infantry is demoralized or of poor quality.

(b) When the infantry can be taken by surprise.

(c) When the infantry is out of ammunition.

(d) When the infantry is broken by the fire of the opposing infantry or artillery.

(e) When the infantry is engaged with the opposing infantry.

(f) To compel the infantry to take up such a formation as to present a good target to the fire of the opposing infantry or artillery.

(g) To check an attack of the enemy's infantry and gain time for the arrival of reinforcements.

(h) When the infantry is exhausted by a prolonged contest with the hostile infantry.

(i) When the infantry is disordered in retreat.

(j) In covering a retreat.

(k) To cut through a surrounding force of hostile infantry.

Q. What is the effect on infantry of a threatened attack by cavalry?

A. Cavalry may thus sometimes check the advance or attack of infantry.

Q. How should cavalry be formed to attack infantry?

A. Infantry is charged substantially the same as mounted cavalry. In charging infantry, cavalry should take the shortest line and endeavor to strike the infantry in flank. In any case, cavalry should be careful not to mask the fire of its own infantry and artillery.

Q. State the three general cases in which artillery may be attacked by cavalry.

A. (a) When artillery, hurried into action, is unsupported by other arms.

(b) When the infantry supports have been driven back, or have exhausted their ammunition, and the artillery stands alone.

(c) When artillery can be surprised, especially while limbering or unlimbering.

Q. How should cavalry be formed for the attack of artillery?

A. In attacking a battery, the cavalry forms in two or three parts; the attacking line charges as foragers, divides near the center as it approaches, and assaults the battery on both flanks. The second line advances and secures the battery; the remainder of the reserve follows in close order to meet a counter-attack, if any. A battery captured should be carried off, but if this be impossible, the guns should be disabled. A charging force of one or two troops for each battery is sufficient.

Q. Enumerate the purposes for which dismounted fire-action may be usefully employed.

A. (a) To drive away or capture small bodies of infantry or partisan troops who endeavor to check the progress of raiding or reconnoitering cavalry.

(b) To force a defile which blocks an advance, and thus avoid a delay.

(c) To seize and hold localities until the arrival of the infantry.

(d) To reinforce infantry in emergencies.

(e) To fill up a gap in the line of battle.

(f) In an enclosed, wooded, or broken country, where mounted action is impracticable.

(g) In covering a retreat.

(h) When exhausted or defeated cavalry is called upon to resist a charge of fresh cavalry.

(i) In conjunction with cavalry mounted.

(j) Whenever cavalry, through force of circum-

stances, is deprived of the power of using mounted action.

**Q.** How are dismounted men maneuvered and fought?

**A.** In essentially the same manner as infantry, with a skirmish or firing line, support, and reserve, except that a mounted reserve is kept for emergencies. On the offensive the men should get up as close as possible before dismounting; at least, they should get up to the zone of effective artillery fire. The position captured, the mounted reserve pursues the enemy. When dismounted cavalry is on the defensive, all the reserve should be put in the firing line, as soon as the enemy's attack is developed. If the attack be by a superior force, the action should be discontinued in sufficient time to allow the defender to retire and mount.

**Q.** Of what value is dismounted fire-action to cavalry?

**A.** It adds immeasurably to the independence and fighting power of cavalry; but it is only the complement of mounted action, and must not be regarded as the chief use of cavalry.

**Q.** When may mounted fire-action be used?

**A.** (a) As a means of temporary resistance by small scouting parties, or by the point and flankers of an advance guard.

(b) In the pursuit of a beaten enemy, when a mounted charge is impracticable.

(c) In covering a retreat when the pursuit is so active and so strong as to make it unsafe to dismount and inexpedient to charge.

(d) When the opposing cavalry is charging over heavy and unfavorable ground.

*Cavalry vs. Cavalry.*

Q. Why will the number of cavalry battles be probably greater in the future than in the past?

A. The success of the campaign depends on the proper performance of reconnoitering duty, the work of the independent cavalry, and this in turn depends upon the superiority of one cavalry over the other. The first duty of such cavalry is to locate the enemy's main body; but the enemy's cavalry generally bars the way. *Therefore, the most effective method by which the independent cavalry can perform such duty is first to defeat the hostile cavalry.* This implies reconnaissance, maneuvering for position, numerous small cavalry encounters, all finally culminating in a fierce combat between the main bodies of the opposing cavalry. Further, during regular battles, the cavalry and the horse artillery will try to get on the flanks or rear of the enemy.

Lastly, almost every great battle will close with cavalry encounters between the covering and the pursuing cavalries.

Q. In mounted cavalry combats, how is the result generally decided?

A. By the mounted charge. In such cases the preliminary maneuvering for position is the *preparatory stage*, while the charge is the *decisive action* or main attack; what follows is the *final stage*.

Q. When the commander of the independent cavalry has decided to attack the opposing cavalry, what preliminary steps are taken?



A. He causes a *thorough and rapid reconnaissance* to be made and recalls all detachments within reach. Every available man must be present at the final collision. Detachments return of their own accord when satisfied that the decisive combat is imminent. When the opposing forces are in close proximity, officers are sent to reconnoiter in pairs, one returning and reporting verbally when definite information is obtained. Such officers are provided, if practicable, with rough outline maps of the intervening country. On these maps they note the position of the enemy and principal features of the terrain.

Q. When the independent cavalry encounters the hostile cavalry, what is the general nature of the plan of attack?

A. The advance guard and horse artillery, with the troops assigned to support the latter, engage the enemy as a retaining force and form a pivot or base upon which the cavalry maneuvers that is to conduct the charge or main attack. The machine guns of this cavalry usually join the artillery support. A general reserve is maintained.

Q. How is a cavalry charge conducted?

A. It is impossible to lay down fixed rules for the conduct of the troops that are to make the charge. They remain screened from the enemy's view as long as possible, and, if practicable, are maneuvered so as to bring his cavalry between his artillery and the point of collision, or so as to strike him in flank or in some situation unfavorable to him. *Combat patrols* determine the exact position of the enemy, and *ground scouts* give timely warning of the nature of the ground over which the troops are to pass. At the rendezvous

position the cavalry is divided into an attacking line and reserve. The attacking line, if practicable, should be stronger and cover a greater front than the enemy. The reserve is generally divided into two parts, the larger part, or second line, following about 400 yards in rear of the most exposed flank of the attacking line and completing the work begun by the latter; the support of the charging line follows in rear of the other flank if the latter is in danger of being enveloped, or that flank may be echeloned to the rear. The remainder of the reserve is held intact until the last moment, and is then used according to the situation.

Q. Of what is the attacking line composed?

A. Of the charging line and its support, the two constituting about one-half of the charging force.

Q. Why are a support and a reserve necessary?

A. Whether successful or not, charging cavalry is always disordered by the shock; hence the necessity of a support to guard against a possible counter-charge made on the disordered troopers. The support must be so posted as to attack the enemy's flank, or to protect that of its own attacking line. The position of the support is therefore on the flank exposed to the enemy, or from which it can best operate against the enemy. In general, the support should not be directly behind the attacking line, lest it be ridden down by the latter if defeated. As the support is usually drawn into the mellay, there must be a reserve to decide the victory or to ward off counter-attacks. The reserve is usually echeloned on the flank opposite to that of the support, unless this should be covered by natural obstacles, when it may be on

the same side as the support. In general the idea is that in any case the support and reserve must relieve the attacking line of all apprehension in respect to its flanks.

Q. What should be the distance between the component parts of an attacking force of cavalry?

A. This distance varies with the strength of the attacking body. In the case of a troop, the support should be about 80 yards from the attacking line, and the reserve not more than 150 from the support. For a brigade or a division, the former distance should be about 175, and the latter about 150—200 yards. The inner flank of the support should be from 50 to 75 yards beyond the outer or exposed flank of the attacking line, and the reserve should be similarly placed in respect to the inner or protected flank of the same line.

Q. Before reaching the position where the charging line is formed, how does the cavalry move?

A. Generally in column of fours, or in a line of such columns with deploying intervals. This permits ready changes of direction, the troops conforming to the direction taken by the chief who leads. The gait should permit the troops to arrive at the attacking position full of vigor and in good order.

Q. Where is the charging line formed, and how is the charge delivered?

A. The charging line is formed at the latest moment consistent with delivering the charge with the greatest momentum possible. If formed too soon, it will lack cohesion; if too late, the necessary momentum cannot be attained. The distance varies from 400 to 600 yards. After the charging line is

formed, it advances with steadily increasing gait to about 80 yards from the enemy, when the *charge* is delivered with all the speed possible, the line being kept intact—the troopers boot to boot.

Q. What is the function of the artillery during the advance of the charging cavalry?

A. It endeavors to break the enemy's formations at the point of attack, using as many guns as can be spared from the action with the hostile artillery.

Q. If the charge succeeds, what is done by the victorious troops? What in case of repulse?

A. The enemy is pursued by the troopers engaged in the *mellay* until the pursuit can be taken up by the reserve, when the attacking line re-forms, and itself acts as a support to the pursuing force. If the charge be unsuccessful, the charging line should so withdraw as to avoid collision with the support and the reserve; these should both attack the pursuing force in flank. The general reserve follows the movement and is used at the critical moment according to the situation. If the attacking force is defeated, it rallies under cover of the horse artillery and the troops holding the pivotal position, and opposes the further advance of the enemy.

Q. If the nature of the ground does not permit the cavalry to charge as *one mass*, what is done?

A. The different bodies advance simultaneously from their rendezvous positions, each upon its proper objective.

Q. What sort of ground is best suited to a cavalry charge?

A. Undulating ground, if not broken by woods, enclosures, etc., as such ground affords considerable

shelter without interfering with the force of the attack. A combination of open and inclosed ground is good, provided passages exist for passing from one open to another, and that open ground suitable for the charge is available immediately in front of the place of collision.

Q. Describe the use of ground scouts and of combat patrols.

A. A knowledge of the ground to be charged over is of great importance to the cavalry leader, as an obstacle seen too late may bring the charge to naught. Hence scouts are sent forward to reconnoiter the ground, communicating the results of their observations to the commander by signals. Combat patrols, consisting of two or three men each, are sent out to the flanks to give timely notice of threatened attacks by the enemy.

Q. What is the only sort of cavalry charge to give decisive results, and how are such charges made?

A. A charge on the enemy's flank. These may be made by causing a portion of the line to overlap the enemy, and to wheel inward, or by detaching a force to make a direct attack on the flank. The second case partakes of the nature of a surprise.

Q. Why is the moment when a cavalry charge should be made of importance?

A. If made too soon, the enemy will be found unshaken and unsurprised; if too late, the confusion, bad position, or other unfavorable circumstance of the enemy will be found remedied, and the opportunity will be lost. Hence the need of keen observation, quick decision, and firm resolution on the part of the cavalry commander.

**Q.** Does cavalry ever charge in column?

**A.** In exceptional cases it may be advisable to charge in column. The distance between subdivisions should then be such as to allow each to give timely support to the one in front, without being so close as to be compromised by its defeat.

**Q.** What are the most favorable opportunities for charging mounted cavalry?

**A.** The most favorable opportunities to charge cavalry are (1) when it can be caught in the act of dismounting to fight on foot, (2) when it can be surprised in column and struck in flank, (3) when it can be taken in flank while charging another body, (4) when it can be struck while changing formation, and (5) when it can be struck issuing from a defile.

#### *Cavalry Raids.*

**Q.** What are the objects for which cavalry raids are undertaken?

**A.** (a) To threaten or to destroy the communications of the enemy, thus compelling him to weaken himself for their protection, or delay his advance.

(b) To check an invading army by operations against its communications and the capture of its immediate base of supplies.

(c) To make a diversion in favor of the main army by drawing off troops in pursuit of the raiding force.

(d) To gain information.

(e) To cause alarm in the enemy's country, and thus destroy confidence in the enemy's commanding general, or create a sentiment unfavorable to the prosecution of the war.

(f) To interfere with the mobilization and concentration of the enemy's forces at the beginning of a campaign.

(g) To devastate the enemy's country and destroy his resources.

(h) To effect the release of prisoners.

**Q.** When are raids practicable, and why should they never be undertaken without an important object?

**A.** Raids are rarely practicable in the enemy's country on account of the hostility of the population. As they wear out the horses, impose great fatigue upon the men, and tend to demoralize them by breeding a spirit of depredation, so they should not be undertaken unless the object justifies all the risks involved. Among these not the least is that of being absent from the army when a decisive battle is to be fought.

**Q.** Describe the composition and preparation of a raiding force.

**A.** A raiding force should be composed of well-mounted, well-disciplined, self-reliant troops, complete organizations being used instead of detachments from various ones, and should usually vary from a regiment to a brigade. For quick work, requiring secrecy, small bodies are best; for devastating a large region and destroying resources, a large force may be used. As a rule, no infantry should form a part of a raiding force; mountain artillery may frequently be used to great advantage, in the proportion of two guns to 1000 men. If not available, then horse artillery may be employed. A raiding force should live on the country, but rations for a few days ought to be

carried for emergencies. Each trooper might be required to carry as many as five days' rations on his person, and always 200 rounds of ammunition and a pair of spare horseshoes. The objective of the raid should in all cases be clearly determined in advance, and the commander should be a man competent to attain it.

**Q.** What constructions should a raiding force seek to destroy?

**A.** Bridges, railways, rolling stock, tunnels, telegraph lines, etc.

### ARTILLERY IN ATTACK.

#### *General Principles.*

**Q.** In what way is artillery valuable to an attack?

**A.** First, to oppose the guns of the defense, so that the infantry may take up at comparative leisure a suitable formation for attack.

Second, to protect the infantry during the attack, from the fire of the opposing batteries, by delivering such a fire upon these as to compel them to turn their attention from the foot troops to the assailant's guns.

**Q.** What further use is made of artillery in the attack?

**A.** The defender's batteries are scarcely ever permanently silenced; it follows, therefore, as the attack proceeds, that the assailing infantry will still have to meet the fire of hostile guns. It is upon these that the guns of the attack bestow their attention, in order to crush them, if possible, before the assailants reach the position, and in any case to make it possible to reach effective rifle range without undue loss.



As the attack gets closer and closer to the enemy, the artillery fires over the heads of the assailants as long as it may do so without injury to its own side.

**Q.** Of what value is artillery in the case of a repulse? in the case of a success?

**A.** In the case of a repulse, it forms a solid support on which the infantry can re-form; in the case of a success, the batteries are pushed forward to the captured position in order to check any counter-attack.

**Q.** How does the tactics of artillery compare with that of the other arms?

**A.** It is far simpler, for artillery always fights in line; the advance in column of route, and the deployments therefrom, with the advance in line, comprise all essential maneuvers. In action, the interval between guns should never be less than 10 yards, as a lesser interval makes the battery too good a target, nor more than 40, as a greater interval would put the guns out of the direct control of the battery commander.

**Q.** What are the requisites of a good artillery position?

**A.** As artillery can act only by the efficiency of its fire, a good position should furnish a clear range to the front and flanks as far as the limit of effective fire. The general position should be at right angles to the line of fire, and should have enough room not only for the guns to be immediately placed in position, but also for the others to be brought up later.

It should furnish concealment for the guns,\* permit easy movements to the front, flanks, and rear, afford good cover for limbers, teams, etc., and for the supply of ammunition.

Q. How is the battery in our service subdivided for combat purposes?

A. 1. The firing battery, consisting of the guns and six caissons.

2. The reserve, consisting of six caissons, the store wagon, the reserve men and horses, and one pair each of harnessed wheel and lead horses. This is a battery combat train.

3. The train, consisting of the forge and the ration and forage wagons. This is the battery field train.

Q. Of what does the fire tactics of artillery consist?

A. Of the art of hitting the enemy. It is requisite, therefore, in order to obtain the enormous effect of which this arm is capable, that it have a definite objective upon which to direct its fire. Hence, as a general rule, "the fire of artillery is directed against that arm of the enemy which at the time is predominant, or which is capable of inflicting the greatest loss on the infantry or cavalry that the artillery is supporting."

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\*A ridge behind which the guns may be placed; if this cannot be obtained, then trees, bushes, or anything that will conceal the guns from view. The most advantageous position, from the point of view of concealment alone, is one at least 400 yards in rear of the covering mass, and hidden from the view of any hostile observers in the front or on the flanks.

A defilade of at least 12 feet is necessary to conceal the flash. (Drill Regulations for Field Artillery.)

**Q.** What is meant by direct and indirect fire?

**A.** Direct fire or laying is the method employed when the target is clearly visible through the sights; indirect fire, or indirect laying, that adopted when the target is not visible through the sights.

**Q.** What is necessary in the case of indirect laying?

**A.** That a place be found where the battery commander can see both guns and target. If this is not possible, indirect firing may still be conducted if an observer can be stationed so as to note the fall of the shots and telephone or signal the results to the battery.

**Q.** What is meant by "rafales"?

**A.** It is a term meaning a sudden gust or squall, and is used by the French as a name for the method of artillery fire which they advocate. As applied to artillery, it means an intermittent fire, beginning with a sudden and rapid storm of shrapnel, covering sufficient ground to include the target, and then ceasing for a time. It is supposed to paralyze everything it strikes. The Germans adhere to the steady, continuous, careful-laying method of fire.

**Q.** What is the great objective of the artillery of both the defense and the attack?

**A.** To shatter the opposing infantry. This requires that the opposing artillery should first be overmastered; if the assailing batteries succeed in doing this, the success of the infantry attack is generally assured; if not, this attack will probably fail.

**Q.** What is meant by the "artillery duel"?

**A.** The contest for supremacy between the oppos-

ing artilleries. Formerly the artillery duel was the opening feature of battles; but now, since artillery can operate from concealed positions, the time of the "duel" will depend upon circumstances. The special object sought in the artillery duel is the destruction of the *personnel*, as the damage to the *matériel* is generally trifling.

Q. Why is the artillery preparation of the infantry attack more important to-day than formerly?

A. Because infantry on the defensive is now generally sheltered by intrenchments, and because the range and destructive effect of its weapons expose the assailant to more severe and long-continued fire than was formerly the case.

Q. After silencing the enemy's guns, or at least establishing a marked superiority over them, what should the artillery of the attack do?

A. It should direct a heavy fire upon the point of attack.

Q. Describe the manner of supporting the infantry attack by artillery.

A. As soon as the order is given to the infantry to advance, all the guns turn their fire on the point of attack, for the hostile infantry is now the objective and the part of the enemy capable of inflicting the most serious loss on the assailant.

Q. How long should the artillery keep up its fire in the support of the infantry attack?

A. Long enough to keep the hostile infantry from presenting a good front to the assault; but not so long as to fire into its own infantry as the latter gets closer and closer to the enemy. A safe rule is to keep up the fire on the enemy's main position until

the final charge, and then to throw shrapnel far enough back to reach the enemy's reserves.

Q. When the hostile position is carried, what should the artillery do?

A. It should hasten forward to assist in a further advance, or to check a counter-attack. If the infantry attack fail, the artillery covers the withdrawal of the infantry.

Q. In what way does artillery give solidity to attack formation?

A. By furnishing points of support to large bodies of infantry in extended order that are of great value in the tumult and danger of battle.

Q. Should the artillery fire over the heads of the infantry of its own side?

A. Firing over the heads of friendly troops is regarded as a normal procedure.

Q. What are the functions of *horse artillery*?

A. The distinctive characteristic of horse artillery is its mobility. Hence it is particularly valuable as an auxiliary of cavalry in attack and defense. It supports this arm by its fire-action, and prepares the way for its charges, much as field artillery prepares the way for infantry. This similarity is all the more marked when cavalry fights on foot. In pursuit, or in covering a retreat, horse artillery is invaluable.

Q. How may horse artillery be used in reconnaissance? in a regular battle?

A. In reconnaissance, to drive in outposts and to develop the hostile position. In the preliminary phases of battle, to develop the enemy's position, and to force the hostile infantry columns to deploy prematurely. It is, moreover, very efficacious in the

cavalry engagements that so frequently mark the beginning and the close of a great battle.

Q. What is the objective of the fire of the horse artillery of a cavalry division?

A. It should, if possible, be the hostile cavalry; but if this is not in sight, then the hostile artillery. As the hostile cavalry moves to the attack, its first line should be crushed, if possible; then its support and reserve. If the enemy's artillery should get the upper hand of our own cavalry, then part of the horse artillery should return the hostile fire, but it must not be forgotten that the principal target should always be the enemy's cavalry.

Q. What should be done with horse artillery in a general engagement?

A. If the cavalry is guarding the flanks, the horse artillery remains with it, for it may be needed; but if the cavalry is in reserve, then the horse batteries reinforce the general artillery line. In case of victory, the horse artillery accompanies the pursuit.

Q. Give the general principles governing the employment of artillery in attack.

A. I. Artillery should be brought into action at the very beginning of the attack, and should be actively employed as long as an enemy remains on the field.

II. It should be employed in *masses*, and should concentrate its fire. but it must be remembered that *massing guns does not consist in posting the batteries contiguously*, but in keeping them together under unity of command, so as to admit of mutual support and of the direction of their fire on a common objective.

III. It should take up a position as close to the

enemy as it can without incurring unnecessary and ruinous losses.

IV. It should not feel called upon to blaze away the moment it comes into position, but it should endeavor to open an *effective* fire with the least possible delay.

V. It must never be forgotten that the value of artillery depends upon the accuracy of its fire.

VI. Artillery should always fire at a definite object, and should avoid "shelling" the woods, or engaging in any other ineffective cannonade.

VII. Every opportunity should be taken to replenish ammunition. The supply must not be allowed to fail, especially at critical moments.

VIII. The principal task of the artillery is to crush the enemy's infantry. It turns its attention to his artillery only as a means of getting rid of an obstacle to its attempts upon his infantry, or as a means of protecting its own infantry from the fire of the enemy's guns. In a cavalry battle, the cavalry is the objective of the artillery fire.

IX. When the attack is successful, the artillery must push forward to secure the captured position.

X. In case of defeat, the artillery must be prepared to cover the retreat, and, if necessary, to sacrifice itself for the safety of the rest of the army.

XI. It should never abandon a position unless ordered to do so. The loss of guns is highly honorable when, by remaining in action until the last moment, they have inflicted serious loss upon the enemy.

## THE ARMS COMBINED.

*Preparatory Stage.*

Q. What is the function of the *cavalry* during the preparatory stage?

A. As the opposing forces come in contact, the cavalry usually transfers its activity to the flanks, where it continues to observe the enemy, drives off his cavalry, menaces his flanks, and takes advantage of every opportunity for action. A cavalry reserve may be held in a position from which it can rapidly reinforce any part of the line.

Q. In what formations does cavalry operate against the flanks and rear of an enemy?

A. Cavalry operating against the flanks or rear of an enemy employs mounted or dismounted action, or both, according to the situation. Surprise is the object. If cavalry is to fight dismounted, it is pushed while mounted close to the enemy, and then every rifle possible is placed upon the firing line. If defeated, it mounts and escapes.

Q. What is the function of the *artillery* during the preparatory stage?

A. Combats are generally opened by the *artillery*. As the effect of shrapnel falls off rapidly at ranges much beyond 3000 yards, the artillery, guarded by other troops, is pushed forward to within 3000 yards of the hostile position, if practicable, but not in effective range of the enemy's infantry. As a rule, its objective is that part of the enemy's forces inflicting the greatest damage to the infantry; it opens fire, therefore, when it becomes necessary to assist that arm, the first target usually being the hostileartil-



lery. However, if enfilade fire or fire on masses or on hostile artillery can be effectively used, artillery may open when such opportunities present themselves.

Q. What is the function of the *infantry* during the preparatory stage?

A. The principal work during an attack, whether in the preparatory stage or decisive action, is done by the infantry. Assisted by the artillery, it works its way from point to point toward the assigned objective. The work of the preparatory stage is to develop the enemy's main position. Before this stands revealed, serious fighting, such as capturing detached posts and salients, forcing back the enemy's advanced troops, etc., may be necessary. Attacks in such cases usually follow the general plan previously outlined.

Q. When infantry moves to an attack, what do commanders endeavor to maintain?

A. A superiority of fire over that of the enemy.

Q. What does this generally require?

A. The placing of as many rifles as possible on the firing line, assisted by both artillery and infantry firing from position. At parts of the front where serious attack is not intended, thin lines of skirmishers well supplied with ammunition may be employed, but in serious attacks heavy lines and a large expenditure of ammunition are necessary. Supports to feed the firing lines follow under cover as near the lines as possible, and local reserves are held at suitable points to defeat possible counter-attacks of the enemy. The attacking troops intrench, if necessary, as they gain ground to the front.

Q. What is the work of the special troops during the preparatory stage?

A. The *engineers* open roads to facilitate communication and to enable the artillery to move rapidly to the front when an advance of that arm becomes desirable.

The *signal troops* establish lines of information connecting, generally, the supreme commander with the divisions, with the commander who is to conduct the main attack, with the reserve artillery, and such other lines as he deems necessary to secure prompt and thorough coöperation throughout the command. Aërial reconnaissance is maintained, if practicable, and captive balloons are used to give timely warning of any hostile movements.

As soon as practicable, *dressing stations* are established, *field hospitals* set up, and arrangements made for the prompt removal of the wounded.

The *ammunition trains* are brought as far to the front as practicable, and steps taken to replenish the ammunition of the troops engaged.

The *field* and *supply trains* are stationed beyond the zone of conflict, where they will not interfere with the movements of the troops. The *pack trains* are generally utilized to facilitate the ammunition supply, and, in combats extending over several days, to assist in the distribution of rations.

Q. How long may the preparatory stage of a combat last, and what marks its close?

A. It may last for hours, and in great battles may even extend through days with increasing demands upon the troops. It terminates when the attackers face the enemy in his principal position at sufficiently close range and in ample force to hold him there.

*Decisive Action.*

**Q.** What part of the hostile line should be selected as the point of attack?

**A.** This point is either a weak flank of the position or a weak point in the line. If a flank is decided upon, the one nearest the enemy's line of retreat is preferable, other things being equal. If a point of the front is chosen, it should allow the massing of the attacking troops under cover near the point to be attacked, and the concentration of a heavy artillery fire.

**Q.** What are the special points to be considered in preparing and carrying out an attack by a force of all arms?

**A. I.** The clearest possible understanding of the nature and extent of the enemy's position.

**II.** A definite object to be gained by the attack.

**III.** A careful selection of the point of attack, and the formation of a plan of battle, which should not be changed unless circumstances absolutely compel an alteration therein.

**IV.** The concentration of a powerful artillery fire on the point selected for attack.

**V.** False attacks on other points, to prevent the enemy from divining the real objective of the attack.

**VI.** The support of the infantry by artillery.

**VII.** Prompt use of the reserves at the decisive moment.

**VIII.** Keeping a force of cavalry well in hand to guard the flanks, follow up a success, cover a defeat, or make a diversion.

**Q.** State the functions of each of the three arms in combination with the others.

A. The infantry protects and supports the artillery; the artillery prepares the way for the infantry, supports it in the attack, and protects it in the retreat; the cavalry reconnoiters the enemy, protects the flanks of the army, supports and gains time for the other arms by vigorous charges when they are sorely pressed, and reaps the fruits of victory by an energetic pursuit.

Q. Describe the conduct of the troops during the decisive action.

A. The *infantry* withheld for the main attack should be fresh, and its appearance as it begins the final advance a surprise. It is therefore moved so as to escape observation, by night if necessary, and established under cover as near the point of attack as practicable. This is called the *position of rendezvous*. *Artillery* to assist in the main attack is placed so as to bring, at the proper time, a heavy fire on the objective. If the enemy's flank is to be enveloped, *cavalry* protects the outer flank of the attacking infantry, repels hostile cavalry, and operates against the flank and rear of the position.

When the infantry is ready to advance, a powerful fire is concentrated upon the point of attack by all the available artillery and position infantry in range; at the same time the fighting all along the line is pushed with the utmost vigor, not only to prevent the enemy reinforcing the decisive point, but, if possible, to break his line at some other point that may happen to be weak. Under the protection of this fire, the attacking infantry begins its advance and moves straight upon the objective, as rapidly as possible, consistent with maintaining the integrity of the at-

tacking line and the vigor of the troops. That the troops may be encumbered as little as possible, the blanket rolls may be left at the rendezvous position. The attack once begun, the sole thought of every officer and man engaged should be the capture of the enemy's position. The sooner this is accomplished, the fewer will be the losses. The selection of the moment for beginning the movement is the duty of the supreme commander. If begun too soon, it may fail from lack of preparation; if too late, the enemy's reserves may be able to reinforce the threatened point and turn the tide of victory, or night may stop the conflict.

The *infantry assault* is generally made as follows: From the rendezvous position an *attacking line*, strong enough to form the necessary *firing line* and *supports*, is sent forward. The remaining infantry forms a *reserve* to be used according to the exigencies of the situation. If long, the attacking line may be divided into sections and an objective, or direction of advance, assigned to each. This enables the commander of each section to take full advantage of the terrain. Until fire is to be opened, the attacking line *advances in any formation* that minimizes loss and occasions no unnecessary delay.

The commander of the attacking line determines when fire is to be opened and forms the firing line accordingly. Where the firing line is formed is called the *attacking position*. If the attacking line is divided into sections, the commander of each section, in the absence of instructions, selects the attacking position for his section and decides when the latter shall open fire.

To secure and maintain a superiority of fire, the firing line is made as dense as possible (about one man to the yard), consistent with effective work by each rifle, and the losses are constantly replaced from the supports, the latter following closely under such cover as the ground affords. At the attacking position the supports form one-fourth to one-half of the attacking line.

The infantry rarely opens fire until well within effective range of the hostile infantry, but from that moment its fire, assisted by that of the artillery and infantry firing from position, must be superior to the enemy's fire or success cannot be assured. This requires a constant fire from the advancing line. To maintain this fire, avoid heavy losses, and at the same time continue the advance, ground to the front is gained by rushes of parts of the line varying from battalions to individuals, according to the intensity of the enemy's fire. The rushes are made so as to take full advantage of available cover.

The reserve follows the firing line as long as it can find cover. A second line is then formed and sent forward in time to join the attacking line in the final assault, and to secure the captured position. The remainder of the reserve follows to assist in repulsing an offensive return, or to complete the rout of the enemy. Whenever the terrain permits, the reserve should support the attacking line by firing from elevated positions in rear.

When the attacking line arrives within charging distance of the enemy's position, it opens a rapid fire and then charges with fixed bayonets. The second

line joins in the charge, adding to its impetus, and furnishing the numbers to decide a possible hand-to-hand conflict.

**Q.** Is it advisable for the supporting artillery to change its position during the infantry advance?

**A.** As the attack progresses part of the artillery may be sent forward to a better position, but it must be remembered that during such change of position the fire of that artillery is lost to the assailant.

**Q.** How does the artillery fire when the infantry nears the point of attack?

**A.** As the attacking line nears the danger zone of the covering artillery, the latter increases its range so as to impede the movements of possible hostile reserves, and to spread confusion in rear of the enemy's position.

**Q.** How long can the artillery continue to fire over the heads of the advancing infantry?

**A.** Under favorable conditions, the artillery can continue its fire on the enemy's position until the advancing infantry is about 300 yards therefrom.

**Q.** What is the conduct of the attacking line, if it is stopped by the enemy's fire?

**A.** It intrenches and waits for the second line, or for a favorable opportunity to continue the advance. The commander may decide not to send forward the second line until night, deferring the assault until then or daybreak the following morning. The general reserve is employed by the commander as the situation demands.

**Q.** What is meant by an artillery preparation?

**A.** A reduction of hostile works by artillery fire preceding the infantry attack.

**Q.** What effect has light artillery fire upon hostile earthworks or trenches?

**A.** Generally little effect. In such cases the artillery assists the infantry by firing upon the enemy when he exposes himself in order to repel the advancing infantry.

*Final Stage.*

**Q.** When a position has been carried by assault, how is it secured against an offensive return?

**A.** After a successful assault, the first and second lines are generally disorganized. Hence the third line pushes forward to hold the captured position, and to furnish cover behind which the first and second lines can re-form. Strong points are occupied, available cover utilized, shelter trenches constructed, if practicable, and a defensive attitude assumed as quickly as possible. The course of events will soon indicate whether the enemy has definitely abandoned the position or not. As long as there is danger of an offensive return, strengthening the position must continue.

**Q.** Describe the conduct of the pursuit.

**A.** The infantry and artillery seek positions from which they can fire on the retreating forces and prevent their taking up a new position or forming a rear guard. The general reserve and all available forces pursue. The cavalry acts with the greatest boldness and energy, using mounted or dismounted action, according to the situation. If it cannot intercept the retreat, it attacks the enemy's flanks, compelling him to deploy and bringing him under the fire of the pursuing infantry and artillery. In the absence of or,



ders, cavalry leaders act on their own initiative, but they must never lose contact with the retreating enemy.

*Action in Case of Repulse.*

Q. What is done when an attack is effectually stopped?

A. If an attack is effectually stopped, either by obstacles or the enemy's fire, or both, the troops withdraw to the nearest cover or remain where they are, under such cover as the ground affords or they can improvise, until night, the withdrawal being then effected under cover of darkness. If withdrawal is made under fire, it is done by parts of the line falling back under cover of the fire of the remainder.

If the enemy assumes the offensive and makes a counter-attack, troops still intact form a defensive position, behind which the defeated troops rally. If the situation is critical, the cavalry may be thrown in to check the enemy's advance, and the artillery continues its fire to the last moment, regardless of the risk of losing guns, the object being to gain time for the infantry to re-form.

Q. What is the rule in regard to ground once gained by the infantry advance?

A. *Ground once gained should not be abandoned until all hope of final success is gone.* The arrival of reinforcements or events in other parts of the field may decide the commander to repeat the assault; the ground held may then afford a starting-point for renewed efforts.

*Night Attacks.*

Q. When are night operations undertaken?

A. Night operations are generally undertaken:

1. To seize a position prior to its occupation by the enemy.

2. To gain ground over a fire-swept zone.

3. To reach a position from which to deliver an assault.

4. To make an assault with minimum loss.

5. To effect a withdrawal.

Q. What are the advantages and disadvantages of night attacks?

A. The advantages are:

1. The fire of the enemy is encountered only at short range, and the dispositions for attack may therefore be much simplified.

2. The enemy is taken by surprise.

The disadvantages are:

1. The attacking columns are liable to lose their way in the dark.

2. The different columns are in danger of mistaking each other for the enemy, thus not only incurring loss at their own hands, but giving warning to the enemy.

3. The concentration of troops in the dark is very difficult and likely to lead to great confusion.

4. The ground cannot be so well known to the assailant as to the defender.

Q. By what troops are night attacks made, and how are they generally conducted?

A. Night attacks are made mainly by infantry. Engineers are added when obstacles are to be removed or surmounted. Cavalry and artillery are placed in readiness to begin operations at daybreak. To deceive the enemy and create confusion and alarm, demonstrations and false attacks may be made

against other parts of his line. The troops that are to make the assault are provided with conspicuous badges and given a watchword.

The attacking force *should not be so large that it cannot be conveniently handled*. A powerful and sustained effort at a single point carefully selected beforehand, coupled with false attacks to deceive the enemy, is preferable to real attacks made at several places or all along the line.

If not already in a position from which the assault can be made, troops detailed to make a night attack are first assembled at a *rendezvous position* and then marched to the *attacking position*, where they are deployed, detailed instructions given, and dispositions for the attack made. If practicable, the troops are assembled before dark. The attacking position should be easy to recognize (elevated positions are favorable) and far enough from the enemy to prevent his discovering the movement. The compass bearing of the point of attack from the attacking position should be known. When everything is in readiness, the troops advance from the attacking position, secretly and silently, with pieces unloaded and bayonets fixed. When the attacking lines become engaged, the supports are pushed in and every effort made to carry the hostile position. As far as practicable, roads and other avenues probably commanded by the enemy's artillery, are avoided.

Q. State the conditions under which night attacks by large forces may be advantageous.

A. 1. When the attacking army is in such spirits and rendered so audacious by previous success that it is in a condition to undertake anything.

2. When the enemy is known to be demoralized, short of ammunition, or grossly careless in the performance of his outpost duties.

3. When reinforcements are expected by the enemy, and the capture of the position is dependent upon prompt action, while an assault does not seem to be practicable by daylight.

4. For the purpose of cutting through a superior force of the enemy, in which case a surprise is necessary, and may be best effected under cover of the darkness.

**Q.** What precautions are taken when night operations are contemplated?

**A.** A thorough reconnaissance is made by night as well as by day and prominent landmarks noted. To prevent information reaching the enemy, orders are issued only in time to permit the preliminary arrangements to be made. All subsequent movements of the attacking force are made quietly and without confusion.

### THE DEFENSIVE.

**Q.** What is the object of a force on the defensive, what are the conditions of a good defense, and how are these conditions best fulfilled?

**A.** The object of the defensive is to shatter the attack by its fire, so as to keep him from reaching the position at all, or if he does reach it, to force him to do so in so crippled a condition as to be easily overthrown by a counter-attack. Hence, an effective fire on the assailant and protection from his fire are essential conditions of a good defense; the conditions are best satisfied by utilizing natural or by making

artificial cover, and by having a firing line of such density as to admit of the most effective use of the rifle by each man.

Q. What is the first duty of a commander who has decided to act upon the defensive?

A. His first duty is to select the *best position available*, consistent with strategical requirements and the general plan of operations.

Q. What are the requisites of a good defensive position?

A. A defensive position should possess as many of the following features as possible:

1. A good view of the front and flanks, and within the position itself.

2. A good field of fire to the front and flanks.

3. Ground suited to the size of the command, with good communications laterally and to the rear, and with an ample supply of good water.

4. Shelter from the enemy's fire and concealment from view.

5. Ground in front that will impede the assailants without furnishing them cover.

6. Flanks easily protected.

7. Ground favorable for making local *counterattacks* and *offensive returns*, and for assuming the offensive.

8. A location that will compel the enemy to attack the position or abandon his advance.

9. A line of retreat running straight to the rear from the center of the position. If a flank position parallel to the enemy's line of advance is assumed, the flank nearest the enemy should rest on an impassable obstacle, and the line of retreat should be perpendic-

ular to the front for some distance in rear of the position.

Q. What is a "counter-attack"?

A. A counter-attack is an attack directed against the enemy's attack; that is, it meets him before, or at the moment of arrival at the defended position. The term is also applied to an attack made after a prior defensive attitude and directed against troops not previously engaged, for example, in turning the flank of an attacking force. This is called the decisive counter-attack, although, properly speaking, it is the *assumption of the offensive*.

Q. Define an "offensive return."

A. An *offensive return* consists in the assumption of the offensive by the defender, with the object of recovering ground just captured by the enemy, and of returning to the original position.

Q. What is the effect of salients in a position?

A. Salients in a position, especially if exposed to a concentrated artillery fire, are a source of weakness. If occupied, they should be strongly fortified, and flanked by artillery and infantry fire. Retreat from advanced positions must not mask the fire of the troops in rear.

Q. How should the terrain in front of the position be prepared, if time permit?

A. It should be covered with military obstacles, such as abatis, pits, wire entanglements, etc. Fences and hedges may often be utilized to great advantage.

Q. What is one of the first requirements of the defensive position proper—i. e., the line on which the men are stationed?

A. It should be suited in extent to the size of the force to occupy it. If too wide in extent, it will be weakly occupied; if the extent be too small, the men will be so crowded as to be incapable of efficient action, and besides will suffer unnecessary loss.

Q. Mention another essential of a good defensive position.

A. Good cover. Natural cover for the reserves may often be found, but protection for troops in action must generally be provided by intrenchments. These enable a commanding officer to hold a part of his line with a comparatively light force, while massing greater numbers elsewhere for offensive movements. Intrenchments should never be constructed so as to be an obstacle to the advance of the defensive troops, when it is decided to make a counter-stroke. As a rule, it is better to have the troops make their own intrenchments.

Q. How should the flanks of a defensive position be protected?

A. By resting them on strong points, either natural or artificial. An example is a hill easy to defend, but hard of access for the enemy; or a fortification. The flank should be hard to carry by open assault or to turn. If there are no such secure points of support, a reserve should be kept in rear of the flank to be guarded, ready to oppose any flank attack that may be made.

Q. What, in general, is the best order of battle for a defensive position?

A. The concave, as it always enables a converg-

ing, and at close quarters a flanking, fire to bear on the attack.

Q. After the defensive position has been selected, what is the next step?

A. The commander forms his *plan of defense*, and issues the necessary order (defense order) for occupying the position. This order designates the general line of defense, divides it into *sections* if necessary, and prescribes the distribution and duties of the troops.

Q. What are the principal factors considered by the commander before deciding upon his plan of defense?

A. 1. The directions in which the enemy may advance, the probable positions of his artillery, and the use that he may make of his cavalry.

2. The best method of occupying the position in order to check or defeat the enemy, and then to assume the offensive.

3. The lines of retreat to a new position, should the enemy's attack be successful.

Q. Can fixed rules be laid down as to the manner of occupying a defensive position?

A. The manner of occupying a position varies with the ground and the troops available. No fixed rules can be laid down, the only reliable guides being the commander's good judgment based on his knowledge of the effect of fire and value of cover, and upon his appreciation of the moral ascendancy gained by a timely assumption of the offensive. However, as thorough coöperation and a superiority of fire are as necessary to the defensive as to the offensive, certain



general principles governing the distribution of troops are applicable to most defensive positions.

Q. How is the *infantry* distributed on the defensive?

A. The infantry is divided into the *fighting line* and *general reserve*. The fighting line occupies the line of defense and consists of:

The firing line,  
Supports,  
Local reserves.

The firing line is placed so that its fire can effectively meet the enemy's advance, and provision is made to keep it as strong as possible, losses being constantly replaced from the supports. At dangerous points where the nature of the ground permits, two or more firing lines may be used, thus furnishing banks or tiers of fire. On the other hand, some parts of the line may be more easily defended than others, thus requiring fewer troops. Ground in front with much cover is specially watched, even if unfavorable for the enemy's operations. Dead spaces are swept with fire of special detachments.

Q. What is the object of the support in the defensive?

A. In general, the same as in the attack.

Q. What is the special duty of the local reserves?

A. To make local counter-attacks when the enemy gains a position threatening the line of defense.

Q. Where are the supports and local reserves posted?

A. The supports and local reserves are as near the firing line as practicable and under cover, in-

trenchments with overhead cover being provided if necessary. They should be in their positions when the combat opens.

Q. Where is the general reserve stationed?

A. The general reserve is usually posted in rear of the center, but it may be placed near a flank where a counter-attack is contemplated. Its position is concealed as long as possible.

As far as practicable, the positions of all reserves and their lines of advance are screened from view and fire, so that their action, which should be directed against the enemy's flank, may come as a surprise.

Q. How is the *artillery* of the defense posted?

A. The artillery is posted so as to command the enemy's lines of approach and the probable positions of his artillery. So far as practicable, it is kept in concealed positions, or is screened from the enemy's view. It may be necessary for the greater part of the artillery to occupy a position in readiness until the plans of the enemy are disclosed.

Q. Discuss briefly the question of cover for guns.

A. Natural cover should be used if possible, and, if there is time, gun-pits made. Screening the guns will often be easier than getting actual cover; the effect of screening is to deceive the enemy as to the range, and thus lead him to waste his ammunition. Artificial cover should be concealed as much as possible by brushwood, turf, etc.

Q. What are the characteristics of a good position for artillery on the defensive?

A. They are essentially those of a good position for attack, as the object in each case is to *hit*. Hence there must be a clear view to the front and to the

flanks. As the flanks are the essentially weak points of the defense, they must be supplied with guns, so that if the enemy attempt a turning movement, he will be compelled to deploy at a distance, and thus give the defense time to prepare to meet this attack. Some of the guns should from the first be posted so as to cover weak points, and others so as to compel a deployment at a distance; but the greater part should not be placed in position until the attack is more or less developed, so as not to unmask the position. Hence the batteries should be brought up near the position, and held under cover until the proper moment for putting them into action.

Q. What is the position of the artillery relative to the infantry in the defense?

A. In the opening stages of the combat, the artillery is the more important arm. Hence the most important points are held by it, a few guns being run up and the rest held in readiness to come forward when needed. Small parties of infantry and of cavalry are pushed forward to baffle reconnoitering parties. As the battle proceeds, these are called in, but skirmishers are kept about 500 yards to the front, whose business it is to keep the hostile skirmishers back 500 yards more, and thus relieve the guns of all anxiety on this score.

Q. How is the *cavalry* of the defense posted?

A. Some cavalry is posted near the flanks to observe the enemy and prevent hostile reconnaissance. The greater part, however, is generally held under cover in rear, and is used to operate against a flank of the enemy's advance, to delay a turning movement, to reinforce weak parts of the line with dismounted fire,

or to coöperate with the general reserves in a counter-attack. If superior to the hostile cavalry, it may be posted so as to threaten the enemy's line of communications.

**Q.** How are the *engineers* employed on the defensive?

**A.** The engineers are employed in opening roads, clearing the field of fire, constructing barbed wire entanglements, and otherwise strengthening the position. Engineer officers outline the trenches and other works, and, if practicable, supervise their construction by the troops.

**Q.** Why are hasty intrenchments used?

**A.** Because good natural cover can rarely be found. Hence troops on the defensive must furnish artificial cover by constructing intrenchments. These should be so traced as to allow effective frontal fire without exposure to enfilade. When constructed, they should be concealed as much as possible by covering the freshly turned earth with bushes, sod, etc., and, if possible, they should not be thrown up until the enemy has defined his attack. The embankment or parapet should be from 30 to 60 inches thick, whence the necessity of an efficient intrenching tool.

**Q.** How are the trenches placed on the defensive?

**A.** Trenches are placed so that the troops will not appear on the sky line, and are concealed as much as possible. They are provided, when practicable, with covered approaches from the rear. Dummy intrenchments may be used to deceive the enemy.

Trenches at the military crest\* generally have a good field of fire and can be easily reinforced or abandoned. They are, however, difficult to conceal, and the fire is more or less plunging. At the foot of a slope trenches are easily concealed and have a grazing fire; on the other hand, the field of fire is apt to be limited, and they are difficult to abandon or reinforce unless covered approaches are provided.

When practicable, trenches for the firing line are made deep and narrow, so as to furnish cover against shrapnel fire. If time permits, overhead cover is also provided.

Q. What other precautions are taken to increase the efficiency of the defense?

A. Ranges are measured and marked and the troops made familiar with the distances.

Q. What is the special duty of the *signal troops* on the defensive?

A. The signal troops establish the lines of information indicated by the commander. Lines are generally run connecting the commander with each section into which the defensive position may have been divided, with the artillery, general reserve, and cavalry reserve. Lines may be run connecting the commanders of adjoining sections. Captive balloons are stationed near the flanks to give timely warning of hostile flanking undertakings.

Q. What preparations are made for the care of the wounded?

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\*The *military crest* is that part of a hill from which all or at least the greater part of the downward slope within range can be seen and subjected to direct fire. It generally differs from the actual or topographical crest, which is at the highest points or watershed.

A. Positions for first aid and dressing stations are selected, and arrangements made for setting up the field hospitals as soon as required.

Q. What is done with the trains?

A. The trains are stationed at convenient places in rear where they will not interfere with the movements of the troops.

*Conduct of the Defense.*

Q. In the conduct of the defense, what relation does the defensive bear to the offensive?

A. As the defensive is, in a measure, the counterpart of the offensive, it presents the same phases, viz., preparatory stage, decisive action, and final stage.

*Preparatory Stage.*

Q. What rules govern the employment of artillery fire on the defensive?

A. During the preparatory stage, the enemy gradually forces back the defender's advanced posts. Whether the defender uses the artillery of his main position or not during this period, depends upon circumstances. Its primary functions are:

1. To keep down the enemy's fire, whether artillery or infantry, that is most damaging to the defense.

2. To inflict losses upon the hostile infantry, impair its morale, and delay or check its advance.

However, unless favorable targets are presented, especially for flanking, oblique or cross fire, or it becomes necessary to reply to the enemy's artillery in order to prevent too much damage from its unrestricted fire, it is generally preferable for the defender's artillery to remain silent, and thus avoid disclosing its position, until hostile infantry or artillery ap-

pears within effective range. On the other hand, if the defender's artillery is completely concealed, it may fire on the enemy whenever the probable effect will justify that expenditure of ammunition. Experience shows that the morale of an assailant is greatly impaired when he is subjected to losses inflicted by an enemy that he is unable to see, or whose fire he cannot return.

**Q.** What may be said of the ability of artillery to defend its own front against infantry and cavalry?

**A.** In open ground it may be asserted confidently that artillery can defend its own front from attacks of infantry. But it may be equally confidently asserted that artillery alone cannot by its fire drive a resolute enemy from his line of defense. Cavalry, even more easily than infantry, can be repelled by artillery fire on open ground. But an unexpected attack by cavalry on the flank or rear of artillery, or while the latter is limbering or unlimbering, would be disastrous.

**Q.** What can you say in regard to the employment of infantry fire during the preparatory stage?

**A.** The principles governing the employment of artillery fire apply, in the main, to the defender's infantry. So long as any advantage can be gained by remaining concealed or silent, the infantry withholds its fire; but if concealment is unnecessary, the infantry (assuming ammunition to be abundant) may fire whenever an opportunity is presented for damaging the enemy, no matter what the range may be. Volley fire at long or even distant ranges and at suitable targets may be very effective. If the hostile artillery is firing on the trenches of the defenders, the

latter expose themselves only when the enemy has advanced within effective range.

Q. Why can long-range fire generally be used with more effect by the defense than by the attack?

A. Because ranges are more accurately known. Again, ammunition can be so much more easily supplied as to justify an expense of cartridges that would be impossible for the attack.

Q. Has infantry anything to fear from cavalry?

A. Good infantry, if intact and plentifully supplied with ammunition, has, unless completely surprised, nothing to fear from cavalry. A line, if attacked, should halt and open fire; a skirmish line should rally by squads, and the support and reserve, if in column, should form line, the support guarding the flanks. If attacked in flank, the support and reserve should form on the threatened flank, the firing line rallying by groups or by sections.

#### *Decisive Action.*

Q. Describe the conduct of the defense during the decisive action.

A. The defenders concentrate their fire on the advancing infantry, and make every effort to inflict losses and check his advance. As the crisis approaches, and there is a probability of the enemy reaching the position, the defender's artillery, irrespective of its own losses, *devotes its entire attention* to the advancing infantry. Machine guns properly placed and under cover are very effective.

Should the assailants succeed in gaining a position threatening the line of defense, a counter-attack is made before the enemy can intrench. Local coun-



ter-attacks are the special duty of the local reserves and are made upon the initiative of officers in command of sections of the defensive position. The troops do not pursue, but return to their positions after the enemy has been driven off. Should the enemy attempt an assault, he is met with rapid fire and a countercharge with fixed bayonets. Every available man is brought up, and the enemy struck in flank if possible. Should the enemy succeed in penetrating the line, he is driven from his position by an offensive return. The offensive return should come as a surprise and be assisted by artillery placed so as to fire upon the enemy's flank within effective range.

*Final Stage.*

Q. Describe the conduct of the defense during the final stage.

A. Should the enemy's attack be effectively repulsed, it may be followed by local counter-attacks, or by an assumption of the offensive, the general reserve striking the enemy's flank, and the reserve cavalry threatening his line of communications.

If the enemy abandons the offensive and begins a retreat, he is vigorously pursued, and every effort made to complete his discomfiture.

If the defenders are unsuccessful, they fall back to the next defensive position, if one has been selected, and there await the enemy. In such cases lines of retreat are chosen so that the retiring troops will not mask the fire of troops already in the new position. If a retreat is decided upon, a rear guard is formed and an orderly retreat begun.

Q. What preparations are made to meet a probable *night attack*?

A. Whenever practicable, the front and flanks of the position are covered with obstacles, and guns are placed so as to sweep the roads and open ground. Dismounted cavalry may be stationed as a reserve to the firing line, especially near the flanks. The outposts exercise the greatest vigilance, *but care is taken not to mask the fire of the main position*. Small patrols or other means of observation give timely warning of any hostile advance, and thus enable the defenders to prepare for a night attack, or an attack at dawn.

*Position in Readiness.*

Q. What is a position in readiness?

A. A position in readiness is a position where troops are assembled, under cover, if practicable, and from which they can be quickly deployed, either for attack or defense, or marched in any direction demanded by the situation.

Q. If it is probable that a defensive position will be taken up, what is done?

A. If it is probable that a defensive position will be taken up from a position in readiness, a part of the artillery and infantry is placed in the defensive position and preparations for defense are made; cavalry reconnoiters and the remaining troops are held under cover in rear.

*Note.*—For the supply of ammunition in combat, see page 168 *et seq.*

## CARE OF THE WOUNDED IN COMBAT.

Q. How are the wounded cared for in combat?

A. Each soldier is provided with a *first aid packet* containing a dressing which he applies himself if wounded and able to do so. Beyond this the care of the sick and wounded devolves upon the sanitary troops, as no combatant, unless duly authorized, is permitted to accompany the sick or injured to the rear.

Q. How are the sanitary troops of the mobile forces divided?

A. Into (1) those attached to regiments and similar organizations, and (2) those organized into independent sanitary units, called ambulance companies and field hospitals.

Q. Describe the duties of the sanitary troops during combat.

A. As soon as it is apparent that they will be needed, the following sanitary stations from front to rear are established for the care of the sick and wounded:

1. First aid stations—generally one for each regiment.
2. Dressing stations—generally one for each brigade.
3. Field hospitals—set up as required.
4. Stations for the slightly wounded—generally one for each division.

Q. What are the first aid stations?

A. Those stations established by the *regimental surgeons* as near the firing line as possible and under the best cover that can be found. If the enemy's fire

is such that the wounded cannot reach these stations, advantage is taken of trenches, ravines, and other inequalities of the ground affording temporary shelter, and the wounded are brought in during lulls in the firing or after nightfall. From these stations the wounded are conveyed to the dressing stations.

Q. What are the dressing stations?

A. Intermediate stations between the first aid stations and the field hospitals.

These stations are established by the *ambulance companies* at places where the ambulances can be sent in order to carry the wounded to the field hospitals. They must therefore be out of range of rifle fire, if possible, and have good protection from artillery fire; at the same time they must be as near the first aid stations as practicable.

Q. What are the duties of the ambulance companies?

A. 1. To establish and operate the dressing stations.

2. To help the regimental *personnel* at the front.

3. To carry the wounded on litters to the dressing stations or the farthest point reached by the ambulances, and thence in ambulances to the field hospitals.

Q. Where are the field hospitals set up?

A. Beyond the zone of conflict, usually 3 or 4 miles in rear of the dressing stations.

Q. What is done with the wounded after they have been admitted to the field hospitals?

A. Those that cannot be returned to duty are transferred to evacuation hospitals (hospitals at the

head of the line of communications). If the army moves forward, the sanitary *personnel* of the mobile troops is promptly relieved by corresponding units from the line of communications. In retreat the necessary sanitary troops remain with the immobile sick and wounded.

Q. What are stations for the slightly injured?

A. Those stations established to relieve dressing stations and field hospitals of the slightly wounded who can walk and require but little attention. They are conspicuously marked, so as to be readily found.

Q. What precaution is taken after battle to see that no sick or wounded are left on the field?

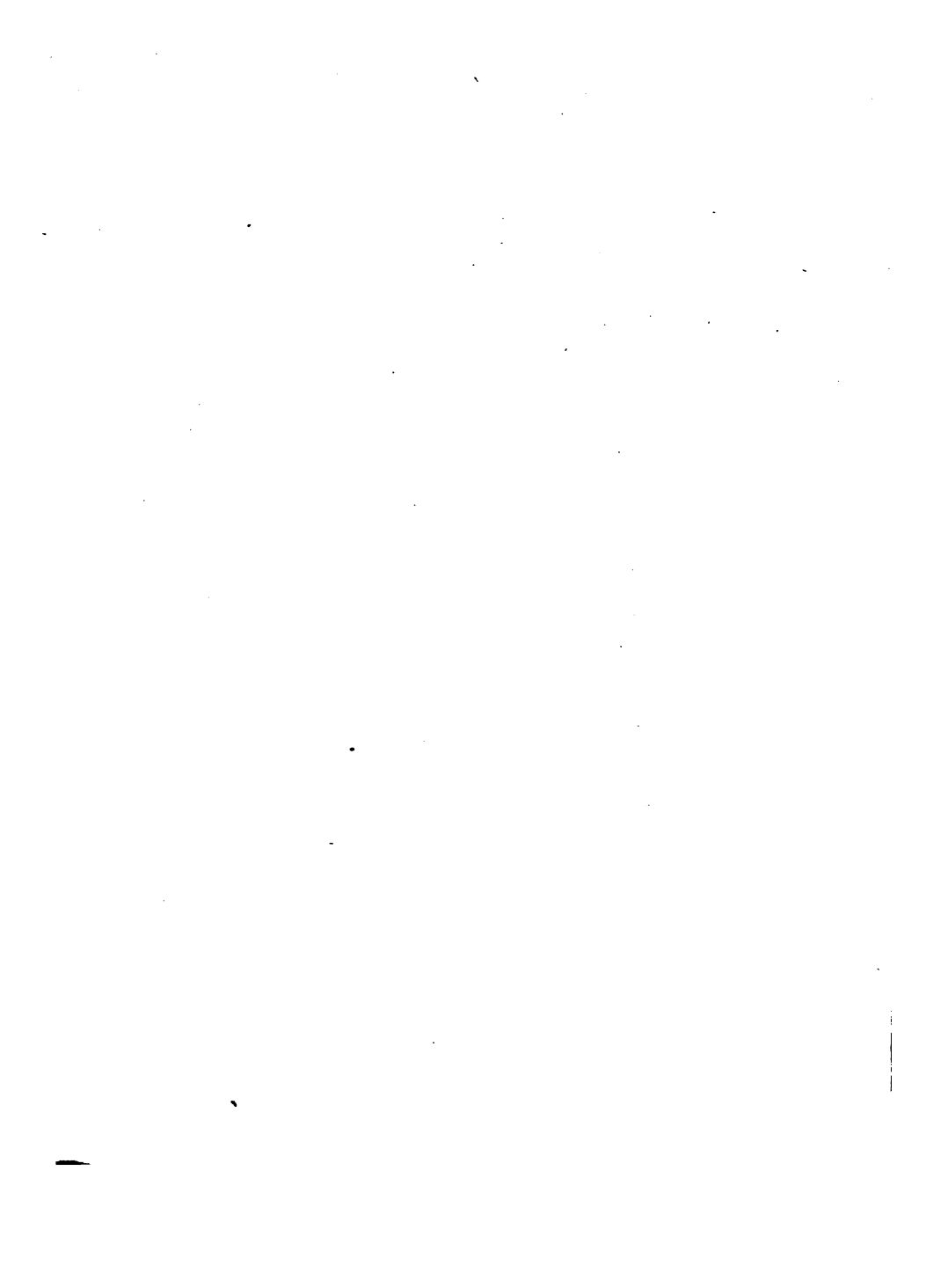
A. Commanders organize a thorough search of the field in their vicinity for the wounded, and assist in their protection and removal.

Q. What care is taken of the enemy wounded found on the battle-field?

A. They receive the same care as the wounded of our own forces.

Q. How are the dressing stations, field hospitals, and other sanitary stations in rear marked, and why?

A. By the national and Red Cross flags. At night green lanterns are added. They are so marked not only for the convenience of our own forces, but so the enemy can see where they are, as he is in duty bound not to molest them if he can avoid it.



**PART II.**  
**FIELD FORTIFICATIONS.**





## CHAPTER I.

### FIELD INTRENCHMENTS.

**Q.** What is the object of all fortification?

**A.** So to strengthen a position that the forces occupying it may successfully resist or subdue their adversaries.

**Q.** Into what two classes are fortifications divided?

**A.** Into Permanent and Temporary or Field Fortifications.

**Q.** What are the subdivisions of field fortifications?

**A.** First, Battle or Hasty Intrenchments, by which an army in the presence of the enemy seeks to protect itself from the direct effect of his fire. Second, Field Works, or Deliberate Intrenchments, for the temporary protection of important points, such as cities, arsenals, bridges, fords, and of military positions in general. Third, Siege Works, for the reduction of fortified positions. The latter are not considered in this work.

**Q.** Why are hasty intrenchments indispensable to-day, and of what do they consist?

**A.** The intensity of fire of modern small - arms makes some sort of protection absolutely necessary, and this protection can in the general case be furnished only by hasty intrenchments. These consist ordinarily of parapets of earth hastily thrown up, whence their name. The parapet with its trench constitutes the

shelter trench, so called. All hasty intrenchments are of three types, according as the line protected is lying down, kneeling, or standing. The last two require, of course, more time in construction than the first, and are resorted to only when the position is to be occupied for a comparatively long time. (See Plate I.)

The principal function of the shelter trench, as already stated, is to shelter infantry, and to protect it against the fire of the enemy's infantry. So important is it now to have the protection of the shelter trench that all infantry troops carry intrenching tools as an integral part of their equipment.

Q. On what does the location of trenches depend?

A. Primarily, on tactical considerations; and secondarily, on the nature of the ground.

Q. What conditions should always be satisfied by shelter trenches?

A. While affording the most complete cover possible under the circumstances, they should have a free field of fire to the front, and should not interfere with or hinder the quick resumption of the offensive.

Q. What is the chief difference between hasty intrenchments on the defensive and on the offensive?

A. On the defensive the trenches are more deliberate, and therefore narrower and deeper, such trenches furnishing better cover against shrapnel;\* on the offensive quick cover is the object sought, and therefore the trenches are more shallow.

Q. What thickness of ordinary earth is required to resist hostile fire?

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\*To furnish shelter from shrapnel, the front face of the trench may be recessed if the ground permits, or, if material and time are available, the part towards the enemy may be provided with an overhead cover. (See Plate I.)

A. At the usual battle ranges, 3 feet for rifle fire, 4 to 6 feet for field guns, and 15 to 20 feet for siege guns. If liable to be exposed to a prolonged attack of field guns (shell fire), a parapet should be from 9 to 10 feet thick.

Q. Why should intrenchments be used even though the desired thickness of parapet cannot be obtained?

A. Any protection is better than none. Mere concealment by a simple screen will greatly reduce casualties, as the hostile fire will be less accurate and less rapid if the target cannot be seen.

Q. How may the normal profile be modified?

A. In various ways to meet local conditions. It may be impossible to dig trenches, for example, in wet soil. In such cases the cover must be all embankment, the earth being taken from a ditch or carried from a distance. Such parapets give a greater command and furnish greater protection in rear. They are, however, more difficult to conceal than simple trenches, especially if the latter are made so deep that the excavated earth can be carried away.

Q. What examples have we of the use of trenches alone, the excavated earth being carried away?

A. Such trenches were used by the Boers in South Africa, and by the Spanish in front of Santiago.

Q. What advantage is gained by using the normal profile?

A. It furnishes cover with the least expenditure of time and labor.

Q. How are trenches classified?

A. Into firing, communicating, and cover trenches. Cover trenches shelter the supports and reserves.

They differ from firing trenches mainly in requiring no command. Communicating trenches connect the cover and firing trenches and afford a protected passage between them.

Q. What thickness of overhead cover will afford protection against shrapnel bullets?

A. From 6 to 8 inches of earth supported on brush or poles.

Q. How is cover for guns and caissons obtained?

A. Either by sinking them below the surface of the ground and building a parapet with the excavated earth, or by leaving them on the natural surface of the ground and building an epaulment in front and on the flanks. The first construction is called a gun-pit; the second, a gun epaulment.

Q. When are field works employed?

A. When a position is to be held for a considerable period, and time is available.

Q. What special conditions must field works satisfy?

A. 1. They must afford protection against both rifle and artillery fire.

2. They must be of suitable size for the garrison that is to occupy them.

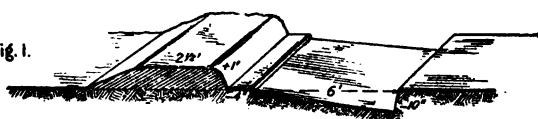
3. They should have suitably constructed casemates to shelter the garrison by night.

Q. Define parapet, trace, and profile, and give the names of the various parts of the profile.

A. A parapet is a bank of earth thrown up to cover the defenders while firing; the trace of a work is its outline in plan, though the term is frequently applied to the horizontal projection of its interior crest. (See Plate 2, Figure 1.) The profile is a cross-section

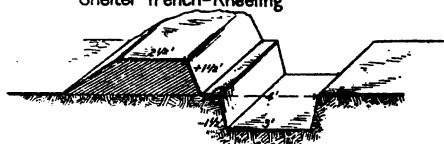
# Shelter Trench-Skirmishers

Fig. 1.



## Shelter Trench-Kneeling

Fig. 2.



## Shelter Trench-Standing

Fig. 3.

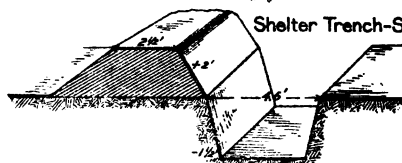


Fig. 4.

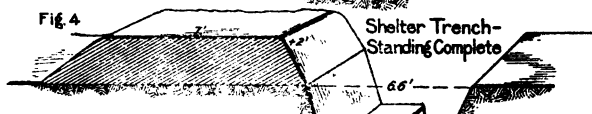
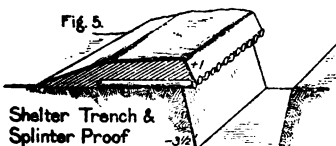


Fig. 5.

Shelter Trench &  
Splinter Proof



## Boor Trenches

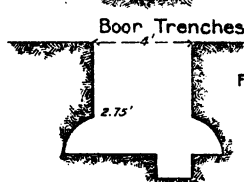


Fig. 6.



## Japanese Trench

Fig. 7.



of the work made by a plane perpendicular to the interior crest. (See Plate 2, Figure 2.)

In the profile, the various parts have received the following names:

- |                      |                               |
|----------------------|-------------------------------|
| (a) banquette slope, | (g) scarp,                    |
| (b) banquette tread, | (h) counterscarp,             |
| (c) interior slope,  | (D) ditch,                    |
| (d) superior slope,  | (i) interior slope of glacis, |
| (e) exterior slope,  | (k) glacis,                   |
| (f) berm,            | (t) trench.                   |

The intersection of the superior and of the interior slopes is called the interior crest; that of the superior and of the exterior, the exterior crest. The thickness of the parapet is the horizontal distance between these two crests.

Q. What is meant by a traverse? by an embrasure? by the command of a work and its relief? by the terreplein?

A. A traverse is a bank of earth inside a work to protect some part of it from direct fire. Usually they are set at right angles to the interior crest of the parapet, to protect the latter from enfilade. An embrasure is a revetted opening in the parapet, through which field guns may fire. The command of a work is the height of its interior crest above the ground on which it is constructed (*m*, Figure 2, Plate 2). Its relief is the height above the bottom of the ditch (*o*, Figure 2, Plate 2). The terreplein is the surface of the ground inside the work.

Q. How, if possible, should the glacis lie with respect to the superior slope?

A. It should be parallel to the superior slope, in order to get the best fire-effect from the position.

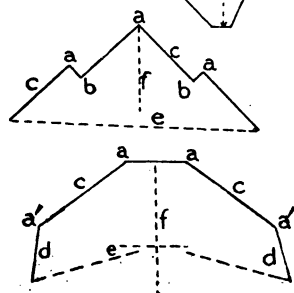
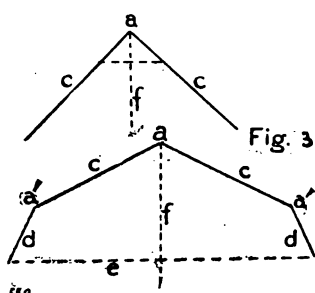
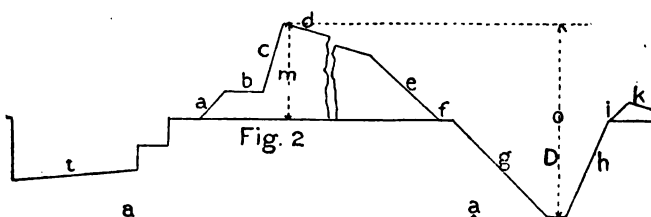
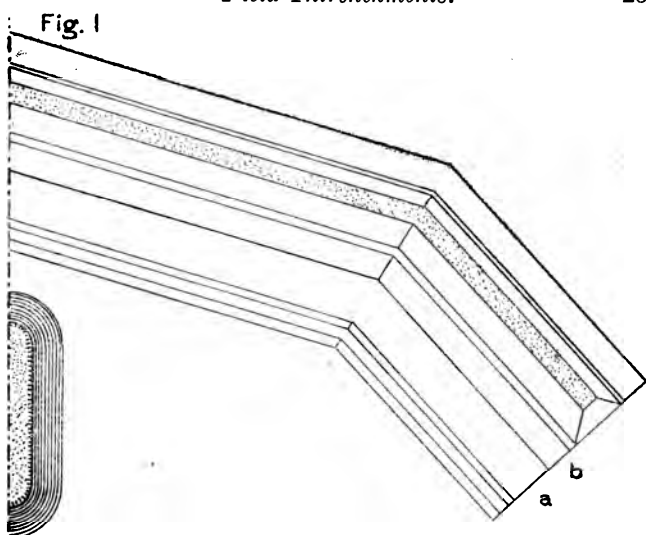


PLATE 2.

**Q.** Point out (Plate 2, Figure 3) the elements of a work with respect to the trace.

**A.** With respect to the traces of various works,

*a* is a salient angle, *c, c, c* are faces,  
*a'* is a shoulder angle, *d, d, d* are flanks,  
*b* is a reëntrant angle, *e, e* is the gorge,  
*f* is the capital.

**Q.** How are field works classified?

**A.** Field works are classified with reference to their trace, as:

(*a*) Open—i. e., having thick parapets on the exposed sides, the rear or gorge being open;

(*b*) Closed, in which the parapet is continuous;

(*c*) Half-closed, which differ from the open in that the gorge is closed by obstacles, stockade work, or shelter trenches.

Open works have the advantage over closed, of affording greater freedom of movement to the defenders, and in the event of capture, of being exposed to fire and assault from the works in rear. Closed works, while affording greater protection from assault, are liable to have their parapets exposed to enfilade or to reverse fire; besides which, the available interior space is much reduced.

**Q.** What is meant by deflade?

**A.** To locate and construct field works so that the interior will be protected from the direct fire of the enemy.

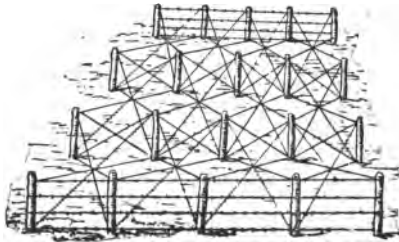
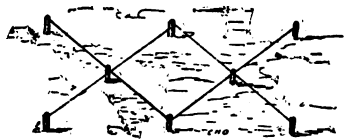
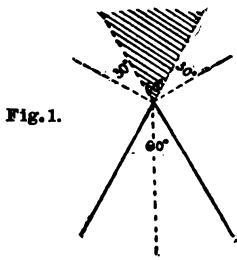
**Q.** What is a revetment?

**A.** A facing used to sustain an embankment at a steeper slope than it would naturally assume.

**Q.** What are magazines?

**A.** Bomb-proof shelter for the protection of guns and troops in action, or for storing ammunition.





**PLATE 3.**

**Q.** What is the difference between a fort and a redoubt?

**A.** A fort has reëntering angles, while a redoubt has none. A fort can thus sweep its own ditches by fire from its own parapets, but a redoubt cannot. From another point of view, redoubts are of much simpler trace than forts, and are therefore more easily built.

**Q.** Explain what is meant by "sector of fire," "dead space."

**A.** By "sector of fire" is meant the angular space in front of a work that is swept by its own fire; the limiting space is usually taken at 60 degrees, being 30 degrees on each side of a perpendicular to the parapet over which the fire is delivered. Such parts of the terrain in front of a parapet as cannot be reached by fire from the parapet itself constitute what is called "dead space," or "undefended space." Thus, in the case of a salient of 60 degrees, there would evidently be a dead space of 60 degrees. (Plate 3, Figure 1.)

In Figure 2, Plate 2, the angular space  $e, f, g, h, i, k$  is called the "dead angle," because it cannot be reached by fire from the parapet. Both dead space and dead angle diminish the value of a work, and have to be corrected by flanking arrangements from neighboring works, or by such an alteration of the trace of the work itself as to provide a fire sweeping the ditches and the dead spaces.

**Q.** How may the defensive power of field-fortifications be increased?

**A.** By the use of obstacles. These have for their object the holding of the enemy under fire while

checking his advance and breaking up his formation.

Q. What conditions should all obstacles satisfy?

A. 1. They must be within the effective zone of the defenders' fire, and must be so arranged as to offer the least obstacle possible to the advance from the side of the defense.

2. They must be concealed as far as possible from the view of the assaulting party, so that this may come upon them as a surprise.

3. They must be difficult of removal under fire, and, if possible, should be of such construction as will necessitate the use of tools not usually carried by troops.

4. They should, if possible, be so placed as to be secure from the fire of the enemy's artillery, and so constructed that, if struck by his projectiles, they will suffer small damage.

5. They must offer no shelter to the enemy.

Q. What form of obstacle is most commonly used?

A. The abatis. This consists of branches of trees about 15 feet long laid on the ground, butts to the rear, all small twigs being cut off, and all large branches pointed and interlaced. The abatis should be 5 feet high. The branches are secured to the ground by forks, wire, or by logs laid over the butts of the branches. (Plate 3, Figure 2.)

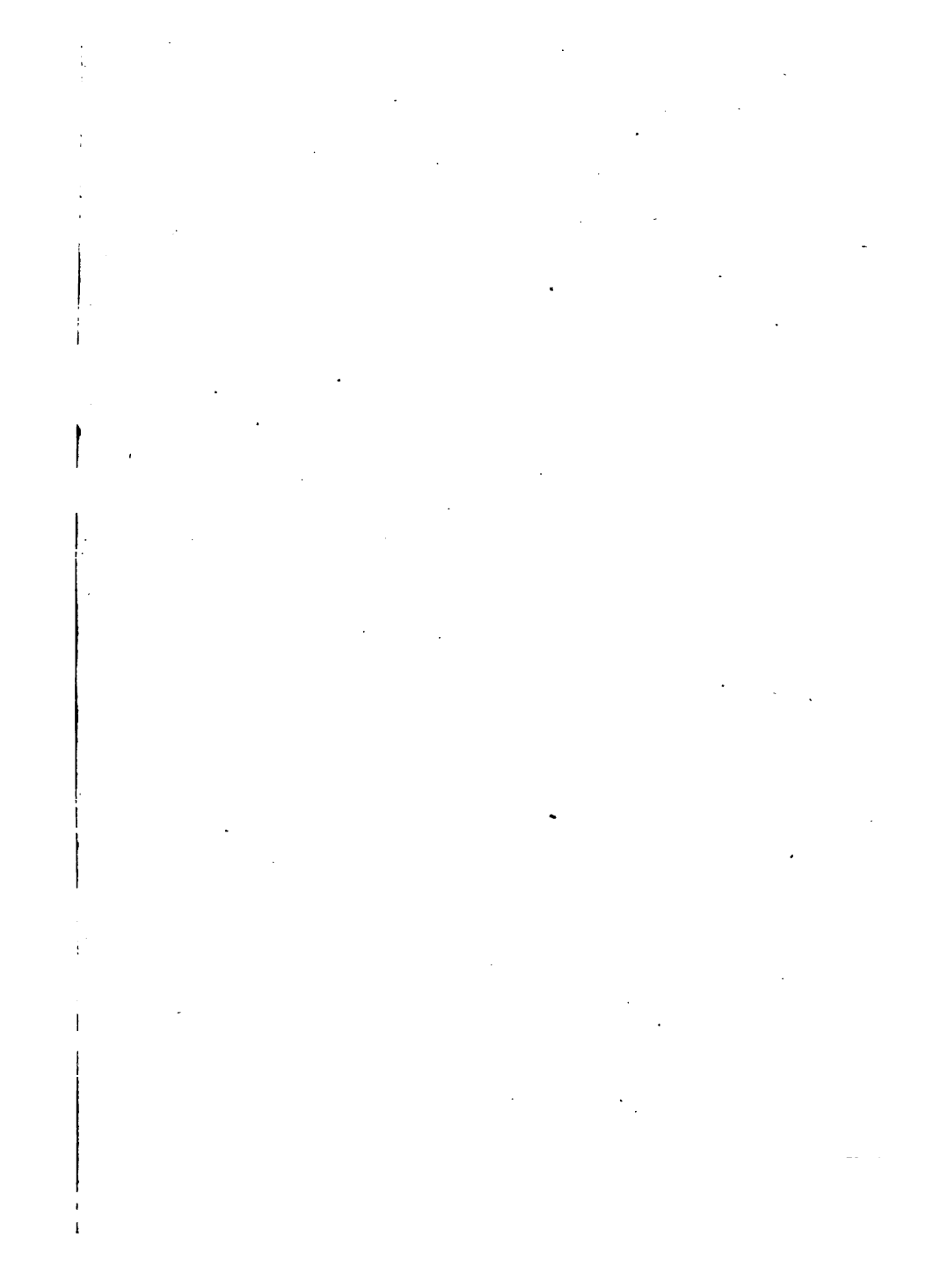
The abatis most easy of construction is that made by felling trees toward the enemy, in such manner as to leave the fallen part still attached to the stump, the branches being then pointed as already described. (Plate 3, Figure 3.)

Q. What are wire entanglements, and how are they constructed?

A. These are obstacles consisting of wire wound between stakes about 18 inches long, driven into the ground about 6 feet apart. The ground should not be cleared, as bushes, etc., increase the delaying effect of the entanglement. The entanglement (Plate 3, Figure 4) just described is called a low wire entanglement. The high wire entanglement is constructed in the same manner, except that the stakes are at least 4 feet long and are driven from 6 to 8 feet apart, the wire leading from the head of the stake to the foot of the one diagonally opposite. The line of stakes in front and in rear should, if possible, be finished off like fencing, with barbed wire; the use of this is not recommended for the interior cross-work, on account of the difficulty of handling it, and of the great length of time consequently necessary. (Plate 3, Figure 5.)

Q. What are palisades, and when are they used to most advantage?

A. Palisades consist of rows of trunks of trees or of squared trunks, 8 to 10 feet high, planted close together, and pointed on top. When material is at hand, ribband pieces should be spiked on the inside along their tops about a foot or two below the points, in order to steady the row. Palisades are used to great advantage in the bottoms of ditches or to close the gorges of field works.





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